Product Data

AquaSnap® Liquid Chillers and Heat Pumps with Scroll Compressors and Carrier Controls

17 to 80 Nominal Tons (60 to 281 kW)
283-1,100 MBH Heating Capacity

30MPA, 30MPW Liquid Chillers and 30MPQ Heat Pumps with Scroll Compressors and PIC6 Controls with R-32 Refrigerant

Features/Benefits

Carrier AquaSnap® packaged liquid and condenser-less chillers and water-cooled heat pumps feature a rugged, compact modular design for quick and easy installation. This modular chiller/heat pump covers a wide range of applications including heating, and various combinations can be easily designed to meet the required plant capacity. Flexible modular design, compact size, and user-friendly controls make the 30MP chillers/heat pumps an optimal choice for reliable chillers/heat pumps. Easy to install, scroll chillers/heat pumps offer cost-effective and reliable cooling and heating.

Value-added features include:

- rotary scroll compression
- refrigerant R-32
- low sound
- easy to use SmartVu® PIC6 controls
- application flexibility
- energy efficiency
- modular design
- optional digital scroll compressors
- dual circuit available on select models (size 033)

Installation ease

The 30MP units are designed to reduce installation time and cost. They arrive at the job site able to fit easily through a standard 36 in. (762 mm) door opening due to their compact design. The 30MP units include fork pockets in the frame for use with forklifts or pallet jacks. Optional mobility and height adjustment kits allow units to quickly roll into place and mate with existing piping. Mobility kit wheels are rubber type, pivot for easy unit maneuvering, and are lockable for safety.

The 30MP height adjustment kit provides a height adjustment mechanism located in each corner of the unit to aid in leveling and facilitate connection to existing piping. The ability to roll the 30MP chiller into most elevators and through most doors combined with the ability to adjust the unit height to match existing piping can significantly lower installation expense.

A field-installed accessory, multi-unit chiller or multi-chiller controller, allows control of up to 8 units as a single, large chiller plant. This modular capability provides flexibility of operating envelope, ease of replacement, and allows the chilled water plant to grow with its facility.

The 30MP units come complete with an insulated evaporator, condenser (30MPW and 30MPQ), compressors, controls, refrigerant charge (30MPW and 30MPQ), EXV (electronic expansion valve) models, filter drier, sight glass, entering and leaving chilled fluid temperature sensors, evaporator water pressure access port, factory-installed evaporator flow switch, and oil charge. The unit will need only the addition of a condenser water supply (30MPW), electrical power, and chilled fluid distribution system.

The 30MPA units are designed for use with a remote condenser and include a liquid line isolation valve, liquid line solenoid valve, and have a nitrogen holding charge. The 30MPA chillers may be connected to an air-cooled, evaporative condenser(s) or even liquid condenser(s) sized to meet specific job requirements.

All internal piping and wiring is complete, and since all essential controls and protective devices are installed at the factory, installation is completed in minimal time. Units are ETL and ETL, Canada listed.

Operating reliability and serviceability

The 30MP chiller/heat pump uses the same compressor sub-assemblies and heat exchangers that are proven to be reliable in AquaSnap chillers in service around the world. Each unit includes many safeties as standard, including protection from electrical overload, thermal overload, high pressure, low refrigerant charge, and low chilled fluid temperature. A factory-installed thermal dispersion switch containing no moving parts provides reliable low flow and loss of flow protection. Heat exchangers feature ANSI (American National Standards Institute) 316 stainless steel brazed-plate construction.

The modular design of the 30MP chiller/heat pump allows units to be installed side by side with no clearance between units to achieve higher capacity. Since each circuit has its own dedicated power supply and controls transformer, an individual chiller can be isolated and serviced while other units continue to operate. The remaining units can provide a supply of chilled water even while a single chiller is down, providing true redundancy and ease of mind.

PIC6 microprocessor controls

The PIC6 controls communicate in easy-to-understand English, making it as easy as possible to monitor and control each AquaSnap chiller while accurately maintaining fluid temperatures. PIC6 controls are also available in multiple languages. The PIC6 controls provide features such as chilled water temperature reset, demand limiting, compressor wear minimization and protection, temperature and pressure displays, and diagnostic functions. These controls result in higher chiller reliability, simplified training, and more productive service calls, with correspondingly lower operational and maintenance costs.

The user interface comes with a chiller pictorial display. The PIC6 display is an easy-to-use touch screen that provides simple navigation for configuration and control of AquaSnap units.

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Features/Benefits (cont)

The display can be used with the touch of a finger. The PIC6 display helps technicians quickly diagnose chiller issues and helps prevent problems from occurring. All AquaSnap® chillers are ready for use with Carrier Comfort Network® (CCN) devices, MS/TP, and BACnet[1] internet protocol (IP); use of either may require additional field programming. A LON (Local Operating Network) Translator control is available as either a factory-installed option or a field-installed accessory. This device, when provided with appropriate field programming, allows interface between the network and the 30MP chiller.

Operating efficiency and flexibility

The 30MP chillers exceed ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) 90.1-2019 minimum efficiency requirements for all sizes 017-080. Models 017 and 033 are less than 15 hp/circuit code. At full load, 30MPW chillers can provide efficiencies better than 0.72 kW/ton at AHRI (Air-Conditioning, Heating, and Refrigeration Institute) standard conditions. The 30MP chillers use ultra-quiet, high-efficiency scroll compressors, operated in tandem or trio for greater efficiency at partial loads. The 30MP chillers can also be operated with variable flow, allowing building owners to realize even greater overall system energy savings in the chilled water pumping system.

Whether in the classroom, on the production floor, or in the office, *SmartVu* controls can assist in adaptation to changing weather and business conditions. Accurate temperature control, provided by Carrier's *SmartVu* system, helps to maintain higher levels of indoor air quality, thermal comfort, and space productivity. While many chillers use only leaving fluid temperature control, the 30MP chillers utilize leaving fluid temperature control with entering fluid temperature compensation. This Carrier exclusive feature provides smart control and intelligent machine capacity staging.

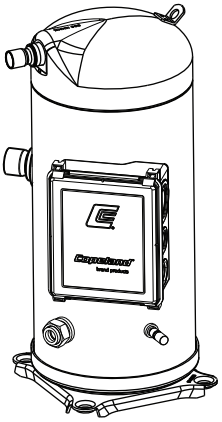
Energy management made easy

While 30MP chillers have many standard features, such as network communications capability and temperature reset based on return fluid temperature, they can also expand as needs change. Supply temperature reset based on outside air or space temperature is as easy as adding a thermistor. The energy management option allows use of changing utility rate structures with easy to use load shedding, demand limiting and temperature reset capabilities. Reset triggered via a 4 to 20 mA signal (requires EMM [energy management module] option) makes integrating from an existing building management system simple.

Digital scroll compressors (models 017-046 only)

Digital scroll compressors are available as a factory-installed option. These compressors allow incremental unloading with capacity modulation to better match building load when compared to standard scroll compressors. The digital scroll option also allows heat recovery up to 130°F.

NOTE: The digital compressor option is not compatible with the medium temperature brine, hot gas bypass, or multi-unit chiller accessory options.



Reducing carbon footprint

The 30MP chiller/heat pump assists in reducing carbon footprint with electrification and decarbonization strategies.

Heat recovery (30MPW)

Carrier's 30MPW is capable of heat recovery (up to 140°F). It produces chilled water controlled to a specified temperature set point while generating hot water as a byproduct of the refrigeration cycle. Heat recovery is used when cooling is the priority, but there is a desire to move and reuse existing heat from an internal heat source in a facility, rather than expelling the heat through a cooling tower. The benefit of doing this is that the building envelope consumes less power and fewer natural resources than operating separate heating and cooling systems, resulting in operational cost savings, increased efficiency, and lower maintenance costs. Additionally, when less heat is sent to an open cooling tower, there is a reduction of water lost to the atmosphere through evaporation. It is common to consider heat recovery when a building's load profile has a significant need for both chillers and boilers operating simultaneously.

Heat pump (30MPQ)

Carrier's 30MPQ water to water, non-reversing heat pumps provide heated leaving condenser water (up to 140°F) useful for heating purposes. Heat pumps are controlled to maintain a leaving condenser hot water set point and are used when heating is the priority. A heat pump takes heat from a low grade heat source such as an internal building cooling load or from an externally source such as geothermal, aquifer, or other wasted heat sources. The onboard PIC6 controls will be set up from the factory to control to the leaving condenser water temperature. The unit will also contain a condenser flow switch and a condenser leaving water temperature sensor. The use of a heat pump often reduces a building's carbon footprint through a concept called Decarbonization and Electrification, reducing the need for using fossil fuels as an energy heat source.

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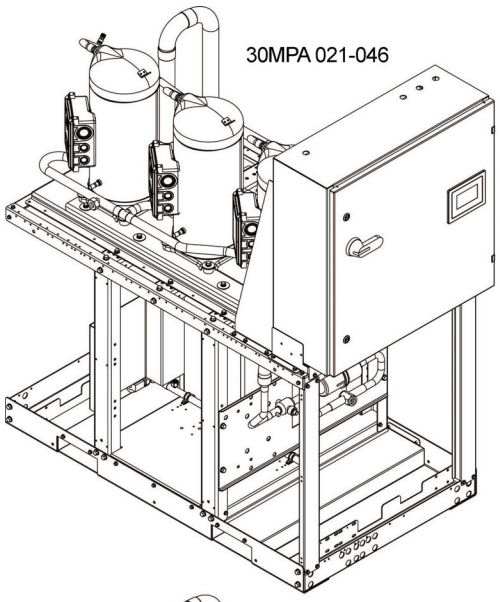
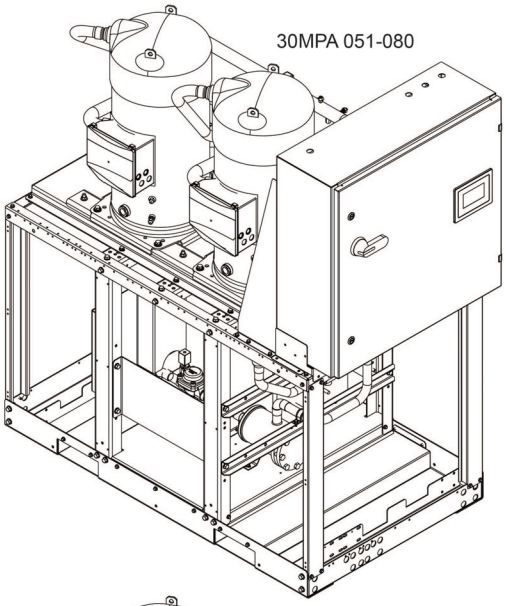
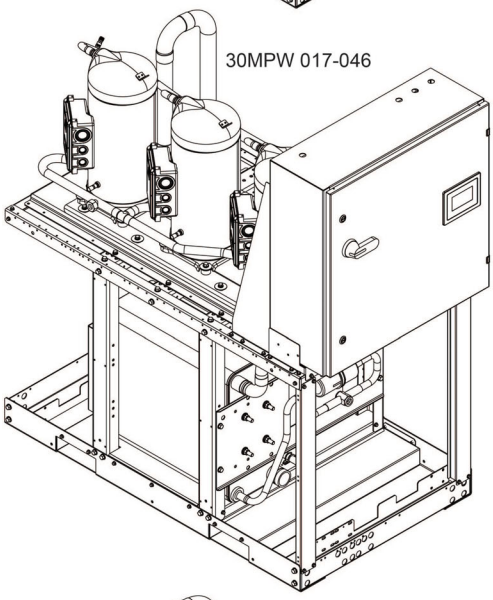
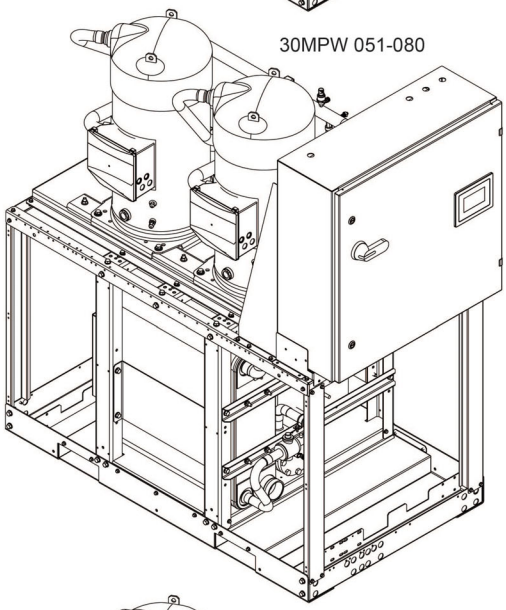
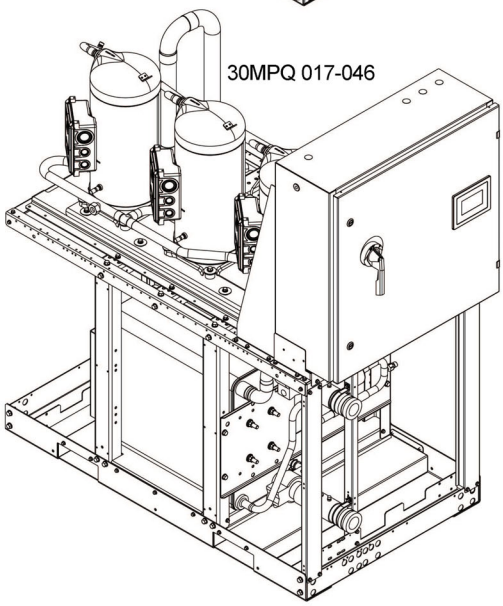
Features/Benefits (cont)

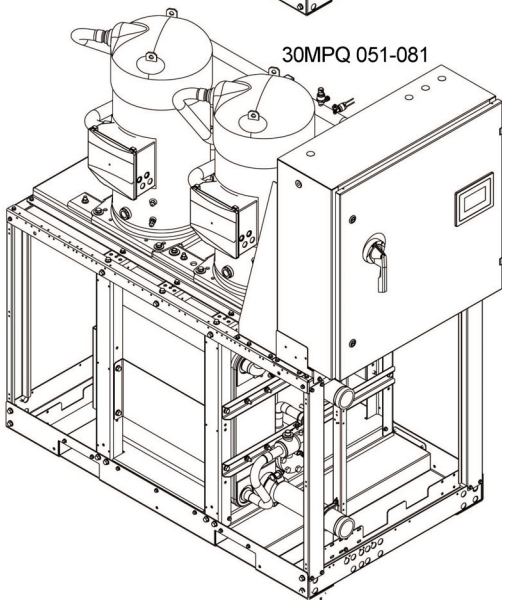












Model number nomenclature

30MP Model Number Nomenclature

30MP W 017 6 0 - 0 0 0 1 5

30MP – Water-Cooled AquaSnap® Chiller

Condenser Option
A – Std. without Condenser (not available for sizes 017 and 033)
W – Std. with Condenser
Q – Heat Pump (not available for sizes 017 and 033)

Unit Size — Nominal Tons (kW)
017 – 15 (53) (only available in 30MPW)
021 – 20 (70)
031 – 30 (106)
033 – 30 (106) (only available in 30MPW)
041 – 40 (141)
046 – 45 (158)
051 – 50 (176)
056 – 55 (194)
066 – 65 (229)
080 – 80 (280)

Voltage Options
1 – 575-3-60
2 – 380-3-60 (not available for size 032)
5 – 208/230-3-60
6 – 460-3-60

Sound/Mounting Options
0 – None (Std)
1 – Sound Enclosure Panels
3 – Height Adjustment Kit
4 – Sound Enclosure Panel and Height Adjustment Kit
5 – Height Adjustment Kit and Sound Enclosure
9 – Mobility Kit (Wheels)
B – Sound Enclosure Panel and Mobility Kit (Wheels)
D – Height Adjustment Kit and Mobility Kit (Wheels)
F – Sound Enclosure Panel, Height Adjustment Kit, and Mobility Kit (Wheels)
G – Sound Enclosure Panel, Height Adjustment Kit, and Mobility Kit (Wheels)
L – Compressor Sound Blanket
M– Mobility Kit (Wheels) and Compressor Sound Blanket
N – Height Adjustment Kit and Compressor Sound Blanket
P – Height Adjustment Kit, Compressor Sound Blanket, and Mobility Kit (Wheels)
Q – Compressor Sound Blanket with Compressor Insulation
R – Mobility Kit (Wheels) and Compressor Sound Blanket with Compressor Insulation
S – Height Adjustment Kit and Compressor Sound Blanket with Compressor Insulation
T – Mobility Kit (Wheels), Height Adjustment Kit, and Compressor Sound Blanket with Compressor Insulation

Unit Design Revision
- – Design Revision Level

Packaging Options
1 – Bag, No Compressor Insulation (Std)[a]
2 – Export Crate, No Compressor Insulation[a]
3 – Bag, and Compressor Insulation[a]
4 – Export Crate, Compressor Insulation[a]
5 – Bag, No Compressor Insulation (Std)[b]
7 – Bag and Compressor Insulation[b]
B – Export Crate, No Compressor Insulation[b]
D – Export Crate, Compressor Insulation[b]

Controls/Communication Options
1 – PIC6 (STD)
3 – PIC6 with Edge Remote Connectivity
5 – PIC6 with EMM
7 – PIC6 with Edge Remote Connectivity and EMM

Disconnect Options
0 – Terminal Block (Std)
1 – Non-Fused Disconnect
2 – Fused Disconnect (select models)[c]

Capacity Control
(Evaporator insulation is standard)
0 – No Hot Gas Bypass(Std)
1 – With Hot Gas Bypass
2 – With Digital Compressor
3 – High Interrupt
4 – High Interrupt and Hot Gas Bypass
5 – High Interrupt and Digital Compressor

Comfort Cooling Duty/Medium Temperature Brine Option
0 – Comfort Cooling Duty (32 to 60°F LCFT, 0 to 16°C (Std) with Refrigerant Charge (MPW) or Nitrogen (MPA)
1 – Water Manifold Piping (Comfort Cooling Duty) with Refrigerant Charge (MPW/MPQ) or Nitrogen (MPA)
2 – Evaporator Isolation with Water Manifold Piping (Comfort Cooling Duty) with Refrigerant Charge (MPW) or Nitrogen (MPA)
3 – Head Pressure Control with Water Manifold Piping (Comfort Cooling Duty) with Refrigerant Charge (MPW)
4 – Head Pressure Control, Evaporator Isolation with Water Manifold Piping (Comfort Cooling Duty) with Refrigerant Charge (MPW)
5 – Water Manifold Piping (Medium Temperature Brine (15 to 32°F, –9 to 0°C), Evaporator Isolation with Refrigerant Charge (MPW) or Nitrogen (MPA)
6 – Water Manifold Piping (Medium Temperature Brine), Head Pressure Control with Refrigerant Charge (MPW)
7 – Medium Temperature Brine with Refrigerant Charge (MPW) or Nitrogen (MPA)
8 – Water Manifold Piping (Medium Temperature Brine) with Refrigerant Charge (MPW/MPQ) or Nitrogen (MPA)
9 – Head Pressure Control, Evaporator Isolation with Water Manifold Piping (Medium Temperature Brine) with Refrigerant Charge (MPW)
A – Water Manifold Piping (Medium Temperature Brine) and Condenser Isolation and Refrigerant Charge (MPQ)
B – Comfort Cooling Duty (32 to 60°F LCFT, 0 to 16°C) (Std) with Nitrogen Charge (MPW)
C – Water Manifold Piping (Comfort Cooling Duty) with Nitrogen Charge (MPW/MPQ)
D – Evaporator Isolation with Water Manifold Piping (Comfort Cooling Duty) with Nitrogen Charge (MPW)
E – Water Manifold Piping (Medium Temperature Brine), Evaporator and Condenser Isolation and Refrigerant Charge (MPQ)
F – Head Pressure Control with Water Manifold Piping (Comfort Cooling Duty) with Nitrogen Charge (MPW)
G – Head Pressure Control, Evaporator Isolation with Water Manifold Piping (Comfort Cooling Duty) with Nitrogen Charge (MPW)
H – Medium Temperature Brine (15 to 32°F, –9 to 0°C) with Nitrogen Charge (MPW)
I – Medium Temperature Brine and Nitrogen Charge (MPQ)
J – Water Manifold Piping (Medium Temperature Brine) with Nitrogen Charge (MPW/MPQ)
K – Evaporator Isolation with Water Manifold Piping (Medium Temperature Brine) with Nitrogen Charge (MPW)
L – Head Pressure Control with Water Manifold Piping (Medium Temperature Brine) with Nitrogen Charge (MPW)
M – Head Pressure Control, Evaporator Isolation with Water Manifold Piping (Medium Temperature Brine) with Nitrogen Charge (MPW)
N – Head Pressure Control (Single Unit) (Comfort Cooling Duty) with Refrigerant Charge (MPW)
O – Water Manifold Piping (Medium Temperature Brine), Condenser Isolation and Nitrogen Charge (MPQ)
P – Head Pressure Control (Single Unit) (Medium Temperature Brine) with Refrigerant Charge (MPW)
Q – Head Pressure Control (Single Unit) (Comfort Cooling Duty) with Nitrogen Charge (MPW)
R – Head Pressure Control (Single Unit) (Medium Temperature Brine Duty) with Nitrogen Charge (MPW)
S – Refrigerant Charge (MPQ)
T – Nitrogen Charge (MPQ)
U – Water Manifold Piping (Medium Temperature Brine, Evaporator and Condenser Isolation and Nitrogen Charge (MPQ)
V – Water Manifold Piping (Comfort Cooling), Condenser Isolation with Refrigerant Charge (MPQ)
W – Water Manifold Piping (Comfort Cooling), Condenser Isolation with Nitrogen Charge (MPQ)
X – Water Manifold Piping (Comfort Cooling), Evaporator and Condenser Isolation with Refrigerant Charge (MPQ)
Y – Water Manifold Piping (Comfort Cooling), Evaporator and Condenser Isolation with Nitrogen Charge (MPQ)
Z – Medium Temperature Brine and Refrigerant Charge (MPQ)

LEGEND
EMM — Energy Management Module
LCFT — Leaving Chilled Fluid Temperature
Std — Standard

NOTES:
a. Available with nitrogen charge (30MPW only).
b. Available with refrigerant charge (30MPW, 30MPQ) or nitrogen charge (30MPA).
c. Fused disconnect switch is required for 017 and 033 units equipped with the High Interrupt Option. Fused disconnect switch is NOT available for any other units.

Model number nomenclature (cont)

30MPE Electrical Distribution Panel Model Number Nomenclature

30MPE W 6 7300 – 0 0 L W

30MPE – Water-Cooled AquaSnap® Chiller Electrical Distribution Panel

Condenser Option

A – Air-Cooled Condenser
W – Water-Cooled/Heat Pump Condenser

Voltage Options

1 – 575-3-60
2 – 380-3-60
5 – 208/230-3-60
6 – 460-3-60 (Standard)

Breaker Amp Rating for each Electrical Position

Positions[a]				Breaker Size
8	9	10	11	
0	0	0	0	– None
3	3	3	3	– 25
4	4	4	4	– 30
5	5	5	5	– 35
6	6	6	6	– 40
7	7	7	7	– 45
8	8	8	8	– 50
9	9	9	9	– 60
B	B	B	B	– 70
C	C	C	C	– 80
D	D	D	D	– 90
F	F	F	F	– 100
G	G	G	G	– 110
H	H	H	H	– 125
J	J	J	J	– 150
K	K	K	K	– 175
L	L	L	L	– 200
M	M	M	M	– 225
N	N	N	N	– 250
P	P	P	P	– 300
W	W	W	W	– 350
R	R	R	R	– 400

Wire Option

W – Wire

Load Side

L – Electrical Load Side on Left
R – Electrical Load Side on Right

Piping/Height Adjustment/Mobility/ Packaging/Sound Options

0 – Water Manifold Piping/Height Adjustment Kit/ Bag (Standard)
1 – Water Manifold Piping/Height Adjustment Kit/ Mobility Kit (Wheels)/Bag
2 – Water Manifold Piping/Height Adjustment Kit/ Export Crate
3 – Water Manifold Piping/Height Adjustment Kit/ Mobility Kit (Wheels)/Export Crate
4 – Water Manifold Piping/Height Adjustment Kit/ Sound Enclosure Panels/Bag
5 – Water Manifold Piping/Height Adjustment Kit/ Mobility Kit (Wheels)/Sound Enclosure/Bag
6 – Water Manifold Piping/Height Adjustment Kit/ Sound Enclosure Panels/Export Crate
7 – Water Manifold Piping/Height Adjustment Kit/ Mobility Kit (Wheels)/Sound Enclosure Panels/ Export Crate

High Interrupt Option[b]

0 – Standard
1 – High[c]

Revision Level

NOTES:

a. The largest breaker requirement will be in position 8 and will go from largest to smallest in positions 9-11.
b. If the total amperage of the electrical distribution panels exceeds 600A, there is no available option for High Interrupt.
c. If chillers are selected with high interrupt, then the electrical distribution panel must be selected with high interrupt, and vice versa.

ASHRAE 90.1 COMPLIANT

Quality Assurance

ISO 9001:2015-certified processes

SEISMICOMPLIANT*

* Meets IBC 2006, ASCE-7-05, CBC 2007, and OSHPD seismic requirements.

Physical data

30MP Units — English[a,b,c,d]

UNIT 30MP	017[e]	021	031	033[e]	041	046	051	056	066	080
OPERATING WEIGHT (lb)										
MPA	—	723	782	—	1083	1147	1514	1533	1614	1659
MPA with Manifold	—	988	1047	—	1348	1412	1779	1798	1879	1924
MPW/Q	677	793	1020	1078	1358	1454	1786	1805	1918	1963
MPW/Q with Manifold	1206	1322	1549	1607	1887	1983	2315	2334	2447	2492
REFRIGERANT TYPE	R-32, EXV Controlled System									
Refrigerant Charge MPA[f] (lb) Ckt A/Ckt B	—	8.5/—	9.4/—	—	12.6/—	12.9/—	25.4/—	27.2/—	29.7/—	36.6/—
Refrigerant Charge MPW/Q (lb) Ckt A/Ckt B	9.5/—	10.75/—	21.75/—	14.5/14.5	28.75/—	35.5/—	37.0/—	39.5/—	43.0/—	47.0/—
COMPRESSORS	Scroll, Hermetic									
Qty	2	2	2	2	3	3	2	2	2	2
Speed (rpm)	3500									
Tons, Ckt A	9, 6	10	15	15	13	15	25	27	27, 40	40
Tons, Ckt B	—	—	—	15	—	—	—	—	—	—
Oil Charge (Oz) Ckt A/Ckt B	135/—	162/—	236/—	118/118	354/—	354/—	446/—	446/—	446/—	446/—
Oil Charge (Oz) Ckt A/Ckt B (Digital Option)	135/—	162/—	228/—	110/118	346/—	346/—	—	—	—	—
No. Capacity Steps										
Standard	3	2	2	2	3	3	2	2	3	2
With Hot Gas Bypass	4	3	3	3	4	4	3	3	4	3
Digital Compressor Option	22	22	22	22	33	33	—	—	—	—
Minimum Capacity Step (%)										
Standard	40	50	50	50	33	33	50	50	40	50
With Hot Gas Bypass	20	25	34	34	21	22	40	35	33	38
Digital Compressor Option	8	15	15	15	10	10	—	—	—	—
Capacity (%)										
Circuit A	100	100	100	50	100	100	100	100	100	100
Circuit B	—	—	—	50	—	—	—	—	—	—
EVAPORATOR	Brazed, Direct-Expansion Plate Heat Exchanger									
Weight (lb) (empty)	49	58	79	92	97	125	137	150	163	186
Net Fluid Volume (gal)	1.60	1.95	2.82	2.92	3.52	4.21	4.64	5.14	5.64	6.49
Maximum Refrigerant Pressure (psig)	650									
Maximum Water-Side Pressure (psig)	300									
CHILLED WATER CONNECTIONS (in.)										
Inlet and Outlet, Victaulic (IPS Carbon Steel)	1.5	1.5	2	2	2	2	2	2.5	2.5	2.5
Drain (NPT)	0.25									
Manifold Connections, Victaulic (IPS Carbon Steel)	6									
CONDENSER (MPW/Q Only)	Brazed Plate Heat Exchanger									
Weight (lb) (empty)	53	53	189	163	217	242	202	202	220	220
Net Fluid Volume (gal)	2.00	2.00	5.60	5.90	7.10	8.00	5.20	5.20	6.30	6.30
Maximum Refrigerant Pressure (psig)	650									
Maximum Water-Side Pressure	300									
CONDENSER WATER CONNECTIONS (in.)										
Inlet and Outlet, Victaulic (IPS Carbon Steel)	1.5	1.5	2	2	2	2	2.5	2.5	2.5	2.5
Drain (NPT)	0.25									
Manifold Connections, Victaulic (IPS Carbon Steel)	6									
CONDENSER REFRIGERANT CONNECTIONS (in.)										
Liquid Line (ODS) in.	—	0.5	0.625	—	0.625	0.625	1.125	1.125	1.125	1.125
Discharge	—	1.375	1.375	—	1.625	1.625	1.625	1.625	1.625	1.625
CHASSIS DIMENSIONS (in.)										
Length	59.50	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5
Width	32	32	32	32	32	32	32	32	32	32
Height	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8
Height with Optional Sound Enclosure	68.8	68.8	68.8	68.8	68.8	68.8	68.8	68.8	68.8	68.8
MINIMUM SYSTEM FLUID VOLUME (gal per ton)										
Normal Air Conditioning										
Standard	6	6	6	6	3	3	6	6	6	6
Optional Hot Gas Bypass	4	4	4	4	3	3	4	4	4	4
Optional Digital Compressor	3	3	3	3	3	3	—	—	—	—
Low Outdoor Ambient Cooling Operation (30MPA Units)										
Standard	10	10	10	10	6	6	10	10	10	10
Optional Hot Gas Bypass	10	10	10	10	6	6	10	10	10	10
Optional Digital Compressor	6	6	6	6	6	6	—	—	—	—

Physical data (cont)

30MP Units — English[a,b,c,d] (cont)

UNIT 30MP	017[e]	021	031	033[e]	041	046	051	056	066	080
CAPACITY STEPS (%)										
Step 1	100	100	100	100	100	100	100	100	100	100
Step 2	60	50	50	50	67	67	50	50	42	50
Step 3	40	25[g]	34[g]	34[g]	33	33	40[g]	35[g]	31[g]	38[g]
Step 4	20[g]	—	—	—	21[g]	22[g]	—	—	—	—
MINIMUM FLOW RATES (gpm)										
Evaporator	22	28	43	43	55	64	70	77	91	117
Condenser	22	28	43	43	55	64	70	77	91	117
MAXIMUM FLOW RATES (gpm)										
Evaporator	74	97	148	148	188	220	286	262	309	384
Condenser	74	97	148	148	188	220	286	262	309	384

NOTE(S):

a. Operating weight includes refrigerant operating charge and weight of fluid in the heat exchangers.
b. Manifold option adds approximately 218 lb to the operating weight of 30MPA units and 436 lb to the operating weight of 30MPW and 30MPQ units.
c. 30MPW and 30MPQ units are shipped with full operating charge.
d. Models 017 and 033 are not available in an air-cooled or heat pump version.
e. Sizes 017 and 033 are only available as 30MPW.
f. 30MPA units (condenser-less) are shipped with nitrogen holding charge. Approximate cooler operating charge is shown.
g. With optional hot gas bypass.

Physical data (cont)

30MP Units — SI [a,b,c,d]

UNIT 30MP	017[e]	021	031	033[e]	041	046	051	056	066	080
OPERATING WEIGHT (kg)										
MPA	—	328	355	—	491	520	686	695	732	752
MPA with Manifold	—	448	475	—	611	640	807	815	852	873
MPW/Q	307	360	463	489	616	660	810	819	870	890
MPW/Q with Manifold	547	600	702	729	856	899	1050	1058	1110	1130
REFRIGERANT TYPE	R-32, EXV Controlled System									
Refrigerant Charge MPA[f] (kg) Ckt A/Ckt B	—	4.9/—	4.3/—	—	5.5/—	5.2/—	11.1/—	12.3/—	13.5/—	19.0/—
Refrigerant Charge MPW (kg) Ckt A/Ckt B	4.9/—	6.5/—	9.9/—	5.2/5.2	12.4/—	14.3/—	16.1/—	17.9/—	19.5/—	24.4/—
COMPRESSORS	Scroll, Hermetic									
Qty	2	2	2	2	3	3	2	2	2	2
Speed (rpm)	3500									
Tons, Ckt A	9, 6	10	15	15	13	15	25	27	27, 40	40
Tons, Ckt B	—	—	—	15	—	—	—	—	—	—
Oil Charge (oz.) Ckt A/Ckt B	135/—	162/—	236/—	118/118	354/—	354/—	446/—	446/—	446/—	446/—
Oil Charge (oz.) Ckt A/Ckt B (Digital Option)	135/—	162/—	228/—	110/118	346/—	346/—	—	—	—	—
No. of Capacity Steps										
Standard	3	2	2	2	3	3	2	2	3	2
With Hot Gas Bypass	4	3	3	3	4	4	3	3	4	3
Digital Compressor Option	22	22	22	22	33	33	—	—	—	—
Minimum Capacity Step (%)										
Standard	40	50	50	50	33	33	50	50	40	50
With Hot Gas Bypass	20	25	34	34	21	22	40	35	33	38
Digital Compressor Option	8	15	15	15	10	10	—	—	—	—
Capacity (%)										
Circuit A	100	100	100	50	100	100	100	100	100	100
Circuit B	—	—	—	50	—	—	—	—	—	—
EVAPORATOR	Brazed, Direct-Expansion Plate Heat Exchanger									
Weight (kg) (empty)	22.2	26.3	35.8	41.7	44.0	56.7	62.1	68.0	73.9	84.4
Net Fluid Volume (L)	6.1	7.4	10.7	11.1	13.3	15.9	17.5	19.4	21.3	24.6
Maximum Refrigerant Pressure (kPa)	4895									
Maximum Water-Side Pressure (kPa)	2069									
CHILLED WATER CONNECTIONS (in.)										
Inlet and Outlet, Victaulic (IPS Carbon Steel)	1.5	1.5	2	2	2	2	2	2.5	2.5	2.5
Drain (NPT)	0.25									
Manifold Connections, Victaulic (IPS Carbon Steel)	6									
CONDENSER (MPW Only)	Brazed Plate Heat Exchanger									
Weight (kg) (empty)	24.0	24.0	85.7	73.9	98.4	109.8	91.6	91.6	99.8	99.8
Net Fluid Volume (L)	7.6	7.6	21.2	22.3	26.9	30.3	19.7	19.7	23.8	23.8
Maximum Refrigerant Pressure (kPa)	4502									
Maximum Water-Side Pressure (kPa)	2069									
CONDENSER WATER CONNECTIONS (in.)										
Inlet and Outlet, Victaulic (IPS Carbon Steel)	1.5	1.5	2	2	2	2	2.5	2.5	2.5	2.5
Drain (NPT)	0.25									
Manifold Connections, Victaulic (IPS Carbon Steel)	6									
CONDENSER REFRIGERANT CONNECTIONS (in.)										
Liquid Line (ODS) in.	—	0.5	0.625	—	0.625	0.625	1.125	1.125	1.125	1.125
Discharge	—	1.375	1.375	—	1.625	1.625	1.625	1.625	1.625	1.625
CHASSIS DIMENSIONS (mm)										
Length	1511	1511	1511	1511	1511	1511	1511	1511	1511	1511
Width	813	813	813	813	813	813	813	813	813	813
Height	1671	1671	1671	1671	1671	1671	1671	1671	1671	1671
Height with Optional Sound Enclosure	1748	1748	1748	1748	1748	1748	1748	1748	1748	1748
MINIMUM SYSTEM FLUID VOLUME (L per kW)										
Normal Air Conditioning										
Standard	6.5	6.5	6.5	6.5	3.3	3.3	6.5	6.5	6.5	6.5
Optional Hot Gas Bypass	4.3	4.3	4.3	4.3	3.3	3.3	4.3	4.3	4.3	4.3
Optional Digital Compressor	3.3	3.3	3.3	3.3	3.3	3.3	—	—	—	—
Low Outdoor Ambient Cooling Operation (30MPA Units)										
Standard	10.8	10.8	10.8	10.8	6.5	6.5	10.8	10.8	10.8	10.8
Optional Hot Gas Bypass	10.8	10.8	10.8	10.8	6.5	6.5	10.8	10.8	10.8	10.8
Optional Digital Compressor	6.5	6.5	6.5	6.5	6.5	6.5	—	—	—	—

Physical data (cont)

30MP Units — SI [a,b,c,d] (cont)

CAPACITY STEPS (%)										
Step 1	100	100	100	100	100	100	100	100	100	100
Step 2	60	50	50	50	67	67	50	50	42	50
Step 3	40	25[g]	34[g]	34[g]	33	33	40[g]	35[g]	31[g]	38[g]
Step 4	20[g]	—	—	—	21[g]	22[g]	—	—	—	—
MINIMUM FLOW RATES (gpm)										
Evaporator	1.4	1.8	2.7	2.7	3.5	4.0	4.4	4.9	5.7	7.4
Condenser	1.4	1.8	2.7	2.7	3.5	4.0	4.4	4.9	5.7	7.4
MAXIMUM FLOW RATES (gpm)										
Evaporator	4.7	6.1	9.3	9.3	11.9	13.9	18.0	16.5	19.5	24.2
Condenser	4.7	6.1	9.3	9.3	11.9	13.9	18.0	16.5	19.5	24.2

NOTE(S):

a. Operating weight includes refrigerant operating charge and weight of fluid in the heat exchangers.
b. Manifold option adds approximately 218 lb to the operating weight of 30MPA units and 183.7 kg to the operating weight of 30MPW and 30MPQ units.
c. 30MPW and 30MPQ units are shipped with full operating charge.
d. Models 017 and 033 are not available in an air-cooled or heat pump version.
e. Sizes 017 and 033 are only available as 30MPW.
f. 30MPA units (condenser-less) are shipped with nitrogen holding charge. Approximate cooler operating charge is shown.
g. With optional hot gas bypass.

Options and accessories

ITEM	OPTION [a]	ACCESSORY[b]
Hot Gas Bypass	X	X
Digital Scroll Compressor (017 to 046 models only)	X	
High Interrupt	X	
Condenser-less[c]	X	
EMM	X	X
Vibration Isolators (Pads)		X
Vibration Isolators (Springs)		X
LON Translator		X
Non-Fused Disconnect	X	
Sound Enclosure Panels	X	X
Mobility Kit (Wheels)	X	X
Medium Temperature Brine	X	
Condenser Water Temperature Sensors		X
Height Adjustment (Leveling) Kit	X	X
Y Strainer		X
Compressor Insulation	X	X
Compressor Sound Blankets	X	X
Water Manifold Piping	X	
Water Manifold Victaulic Spacer Fitting Kit		X
Electrical Distribution Panel		X
Multi-Unit/Multi-Chiller Controller		X
Head Pressure Control	X	X
Automatic Evaporator Isolation Valves[d]	X	
Heat Pump (30MPQ)	X	
Automatic Condenser Isolation Valves (30MPQ)[d]	X	

NOTE(S):

a. Factory-installed option.
b. Field-installed accessory.
c. Not available for 017 and 033 units/model.
d. Only available with Water Manifold kit option and Multi-Unit Controller or Multi-Chiller Controller accessory.

Factory-installed options

Hot gas bypass

Hot gas bypass can be factory-installed to allow additional capacity reduction for unit operation below the minimum step of unloading.

NOTE: This option is not available in combination with medium temperature brine.

Digital scroll compressor

Digital scroll compressors are available as a factory-installed option. These compressors allow for incremental unloading with capacity modulation to better match building load when compared to standard scroll compressors. This option is not available in conjunction with the a multi-unit controller, or multi-chiller controller accessory kit.

NOTE: The digital compressor option cannot be selected with the medium temperature brine option. Medium temperature brine is below 32°F.

30MPA Condenser-Less Chiller Liquid-Cooled Unit

Options and accessories (cont)

30MP Multi-Unit/Multi-Chiller Control System

High interrupt

High interrupt is available as a factory-installed option that gives the chiller a short-circuit current rating of 65 kA (25kA at 575-v). A Class J over-current protection fuse must be installed ahead of the unit to maintain the 65 kA rating. A Class J over-current protection fuse is NOT required ahead of 017 or 033 units with the high-interrupt option. (The standard interrupt rating is 10 kA.) When a 30MP unit with high interrupt option is paired with a 30MPE panel with high interrupt option, a class J overcurrent protection fuse is required ahead of the 30MPE panel.

Condenser-less Unit

Applicable to the 30MPA model only and is available for use with remote condensers. The condenser-less option is not available on 017 or 033 air-cooled units.

Energy management module (EMM)

The energy management module is used for 4 to 20 mA leaving fluid temperature reset, cooling set point reset, 4 to 20 mA demand limit and two-step demand limit. Temperature reset lets the unit reset the leaving fluid temperature to a higher temperature during low load conditions. Temperature reset can also be accomplished based on return fluid, outdoor air, or space temperature.

The EMM option is not required when using entering-water or outdoor-air for temperature reset. These types of reset are available with the main control board. However, an accessory thermistor is required for outdoor-air and/or space temperature reset. Demand limiting allows the unit capacity to be limited during periods of peak energy usage. Demand limit requires an external 4 to 20 mA signal or a 2-step remote pair of dry contacts. Both the 4 to 20 mA and 2-step demand limit percentage values are adjustable. This is also available as a field-installed accessory.

NOTE: This option is not available in conjunction with the multi-chiller controller accessory kit.

Medium temperature brine option

Unit must be factory-modified to permit brine operation from 15 to 32°F (–9.4 to 0.0°C) leaving brine temperature.

Refrigeration circuit components, such as the liquid line solenoid, are modified to permit the low refrigerant flow rates typical of brine duty operation. Neither the digital scroll nor the hot gas bypass option can be selected with the medium temperature brine option.

Heating Control (30MPQ)

Capacity control is driven by the heating set point on the condenser loop. Heating water can be provided up to 140°F.

Non-fused disconnect

For wiring convenience, an electrical power disconnect for line and control power may be factory-installed.

Sound enclosure panels

Units may be ordered with acoustically insulated sheet metal enclosures installed around the unit to reduce radiated sound levels. Panels are also available as a field-installed accessory for all 30MP units. For the 30MPE panel, the sound enclosure accessory kit will provide a uniform look for the 30MPE panel in a bank of 30MP chillers with sound enclosures.

Mobility kit

Wheels are shipped with the unit for field installation to aid in transportation of unit to its final installation site. Wheels are rubber type, pivot for easy unit maneuvering, and are lockable for safety. The mobility kit is also available as a separately shipped, field-installed accessory for all 30MP units.

Height adjustment (leveling) kit

A leveling adjustment mechanism is shipped with the unit and must be field-located in each corner of the unit, to facilitate easy installation and connection to existing piping. Leveling kit is also available as a field-installed accessory.

Compressor insulation

Compressor insulation is designed to insulate the scroll compressors and prevent water vapor from condensing on the colder compressor surface.

Compressor sound blankets

Units may be ordered with acoustically insulated sound blankets installed around the compressors to reduce radiated sound levels.

Water manifold piping

Units may be ordered with water manifold piping which allows two or more 30MP chiller modules to be piped together in parallel. Option includes combination valves (balance and isolation).

Options and accessories (cont)

Head pressure control

The head pressure option provides a control board and valve that adjusts chiller head pressure by regulating condenser water flow into the chiller's condenser. This keeps the compressor in its envelope (typically) during cold weather operation.

NOTE: This option is available only on the 30MPW.

Automatic evaporator isolation and automatic condenser evaporator isolation

Automatic evaporator isolation and automatic condenser evaporator isolation valves close when chiller is running at zero percent capacity. This option requires a supervisory plant controller, such as the multi-unit controller accessory.

Field-installed accessories

Electrical distribution panel

The distribution panel is an electrical cabinet that is offered to provide a convenient location for circuit breakers for up to four (4) modular chillers in a 30MP multi-chiller plant. It is designed standard with a manifold package that allows it to be piped directly into the common chiller water header.

Mobility kit

Wheels may be field-installed on the unit to aid in transportation of unit to its final installation site. Wheels are rubber type, pivot for easy unit maneuvering, and are lockable for safety.

Height adjustment (leveling) kit

Leveling adjustment mechanism located in each corner of the unit, to facilitate easy installation and connection to existing piping. Leveling kit is also available as a factory-installed option for all 30MP units.

Mobility kit

Wheels may be field-installed on the unit to aid in transportation of unit to its final installation site. Wheels are rubber type, pivot for easy unit maneuvering, and are lockable for safety.

Multi-unit/Multi-chiller controller kit

The 30MP multi-unit controller or multi-chiller controller is used to control up to eight (8) 30MP chillers as one central plant. The multi-chiller controller operates each individual chiller by staging the machines independently to reduce energy consumption at part-load operating conditions. Additionally, options for the multi-chiller controller include: common leaving chilled water sensor, relative humidity sensor, demand limit, and outdoor air temperature reset. The multi-chiller controller is not compatible with chillers equipped with a digital compressor and energy management module (EMM). This option is not available for metric units.

Hot gas bypass (HGBP)

Hot gas bypass can be field-installed to allow additional capacity reduction for unit operation below the minimum step of unloading. This accessory cannot be used in combination with medium temperature brine.

Water manifold Victaulic spacer fitting kit

This kit consists of Victaulic fittings and spacer pipe to allow for easy installation of water manifold units.

Vibration isolators

Isolators are installed on the base of the unit to reduce vibration transmission from the unit through the floor. This package consists of 6 resilient pads or 6 springs for each model.

LON (Local operating network) translator control

The LON translator control provides an interface between the unit and a local operating network (i.e., LonWorks[1] FT-10A ANSI/EIA-709.1).

Condenser water temperature sensors

This sensor accessory is standard with 30MPQ models and allows measurement of condenser water entry and leaving temperatures.

Energy management module (EMM)

The energy management module is used for 4 to 20 mA leaving fluid temperature reset, cooling set point reset, 4 to 20 mA demand limit and two-step demand limit. Temperature reset lets the unit reset the leaving fluid temperature to a higher temperature during low load conditions. Temperature reset can also be accomplished based on return fluid, outdoor air or space temperature.

The EMM accessory is not required when using entering-water or outdoor-air for temperature reset. These types of reset are available with the main control board. However, an accessory thermistor is required for outdoor air and/or space temperature reset. Demand limiting allows the unit capacity to be limited during periods of peak energy usage. Demand limit requires an external 4 to 20 mA signal or a 2-step remote pair of dry contacts. Both the 4 to 20 mA and 2-step demand limit percentage values are adjustable. This is also available as a factory-installed option.

NOTE: This option is not compatible with the multi-unit controller or multi-chiller controller accessory kit.

Y strainer

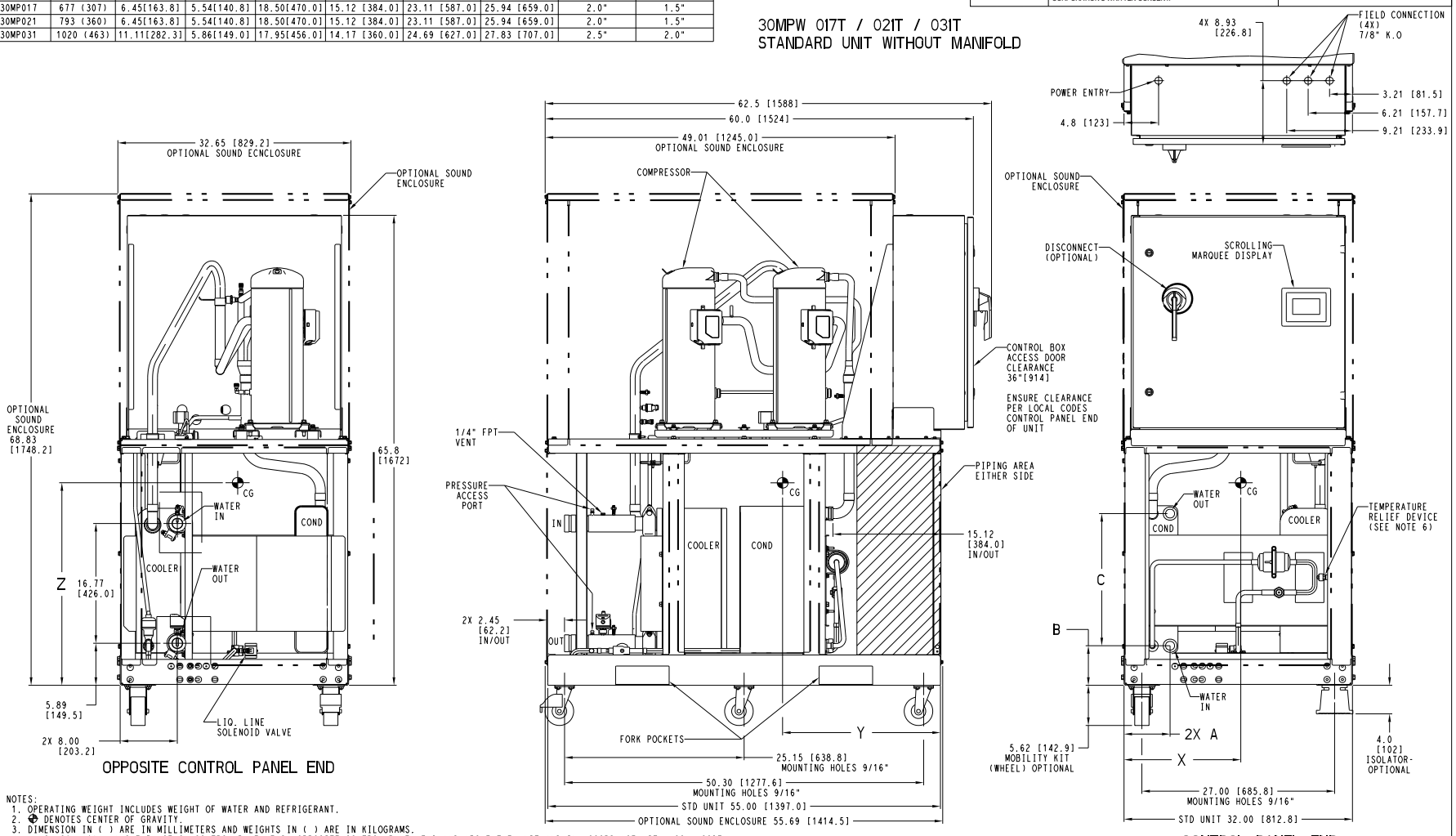
A strainer with a minimum of 40 mesh must be installed within 10 ft (3 m) of the heat exchanger fluid inlet to prevent debris from clogging or damaging the heat exchanger. The Y strainer is required and is available as an accessory. The Y strainer is available in sizes from 1-1/2 to 6 inches.

1. Third-party trademarks and logos are property of their respective owners.

Dimensions — 30MPW 017-031 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	A	B	C	CENTER OF GRAVITY			COOLER WATER IN / OUT VICTAULIC	COND. WATER IN / OUT VICTAULIC
					X	Y	Z		
30MP017	677 (307)	6.45[163.8]	5.54[140.8]	18.50[470.0]	15.12 [384.0]	23.11 [587.0]	25.94 [659.0]	2.0"	1.5"
30MP021	793 (360)	6.45[163.8]	5.54[140.8]	18.50[470.0]	15.12 [384.0]	23.11 [587.0]	25.94 [659.0]	2.0"	1.5"
30MP031	1020 (463)	11.11[282.3]	5.86[149.0]	17.95[456.0]	14.17 [360.0]	24.69 [627.0]	27.83 [707.0]	2.5"	2.0"

30MPW 017T / 021T / 031T
STANDARD UNIT WITHOUT MANIFOLD

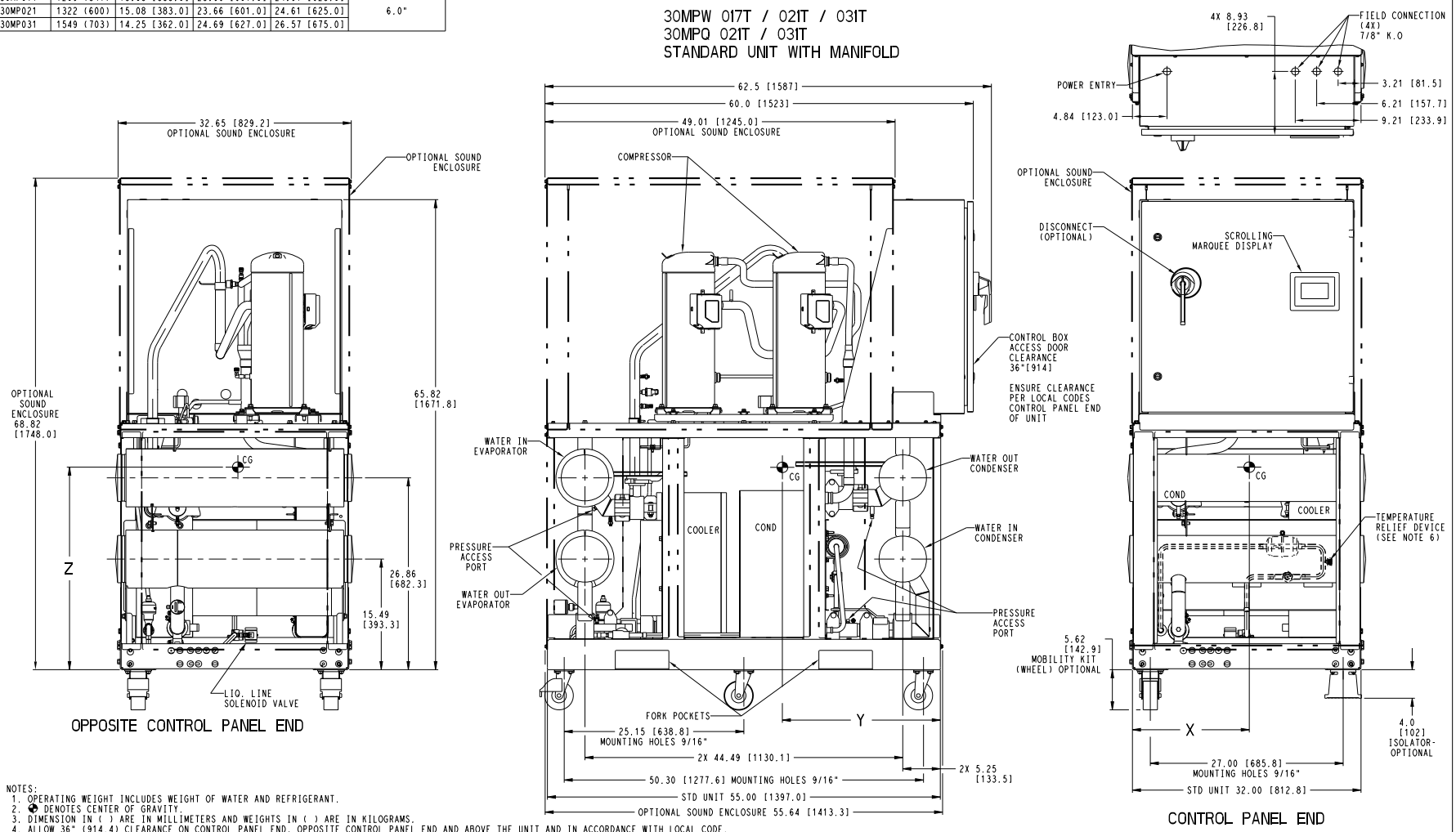


NOTES:
1. OPERATING WEIGHT INCLUDES WEIGHT OF WATER AND REFRIGERANT.
2. ⊕ DENOTES CENTER OF GRAVITY.
3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
4. ALLOW 36" (914.4) CLEARANCE ON CONTROL PANEL END, OPPOSITE CONTROL PANEL END AND ABOVE THE UNIT AND IN ACCORDANCE WITH LOCAL CODE.
5. ——— — — DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. TEMPERATURE RELIEF DEVICE LOCATED ON LIQUID LINE. 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

Dimensions — 30MPW 017-031, 30MPQ 021 and 031 With Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	CENTER OF GRAVITY			WATER HEADERS (COND. & COOLER) IN/OUT VICTAULICS
		X	Y	Z	
30MP017	1206 (547)	15.08 [383.0]	23.66 [601.0]	24.61 [625.0]	6.0"
30MP021	1322 (600)	15.08 [383.0]	23.66 [601.0]	24.61 [625.0]	
30MP031	1549 (703)	14.25 [362.0]	24.69 [627.0]	26.57 [675.0]	

30MPW 017T / 021T / 031T
30MPQ 021T / 031T
STANDARD UNIT WITH MANIFOLD



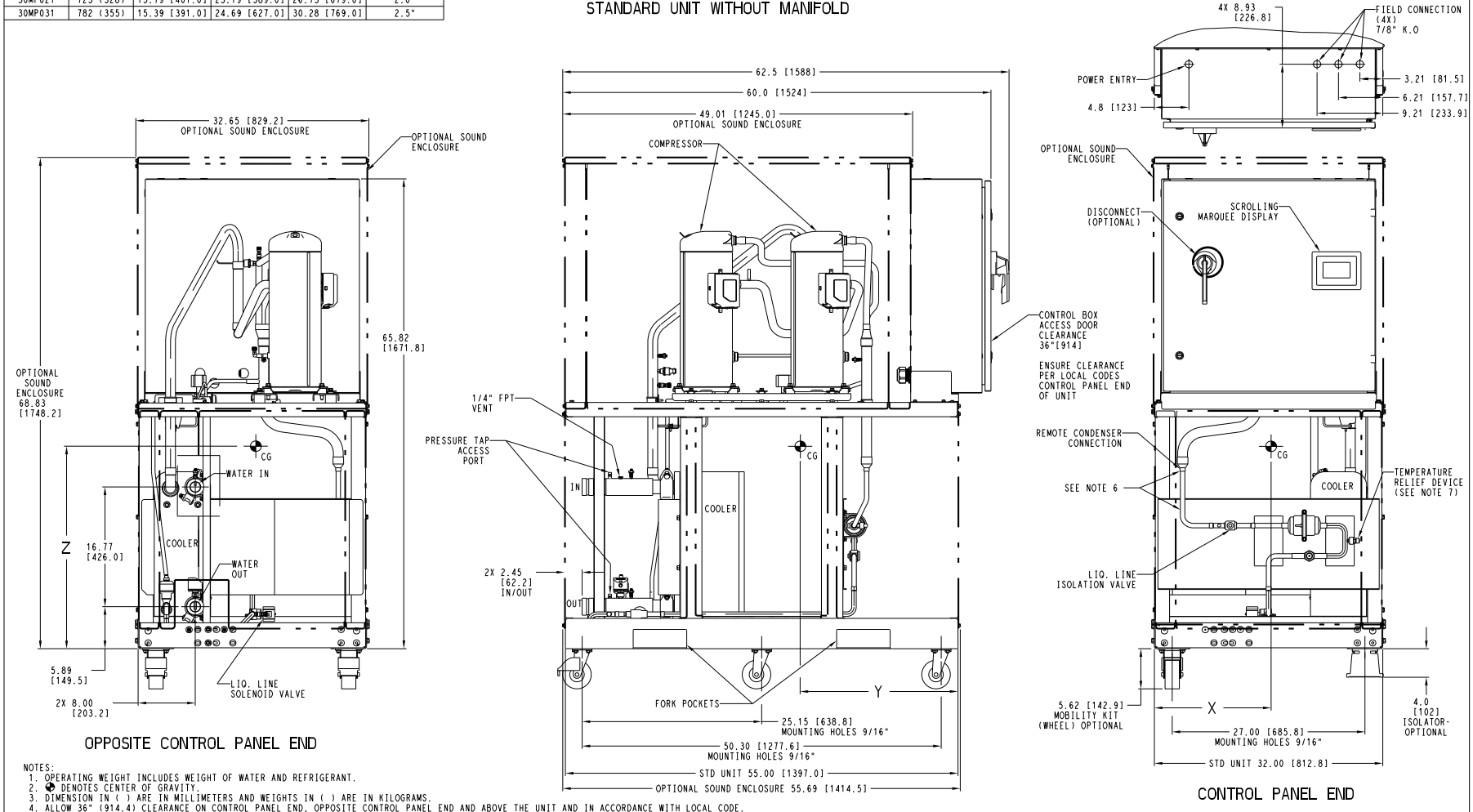
NOTES:
1. OPERATING WEIGHT INCLUDES WEIGHT OF WATER AND REFRIGERANT.
2. ⊕ DENOTES CENTER OF GRAVITY.
3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
4. ALLOW 36" (914.4) CLEARANCE ON CONTROL PANEL END, OPPOSITE CONTROL PANEL END AND ABOVE THE UNIT AND IN ACCORDANCE WITH LOCAL CODE.
5. ——— — — DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. TEMPERATURE RELIEF DEVICE LOCATED ON LIQUID LINE. 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	30MPW 017-031T UNIT ASSY		REV
U.S. ECCN:EAR99	3 OF 4	07/30/24	-	-	30MP60000200	B

Dimensions — 30MPA 021 and 031 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	CENTER OF GRAVITY			COOLER WATER IN / OUT VICTAULIC
		X	Y	Z	
30MP021	723 (328)	15.79 [401.0]	23.19 [589.0]	26.73 [679.0]	2.0"
30MP031	782 (355)	15.39 [391.0]	24.69 [627.0]	30.28 [769.0]	2.5"

30MPA 021T & 031T
STANDARD UNIT WITHOUT MANIFOLD



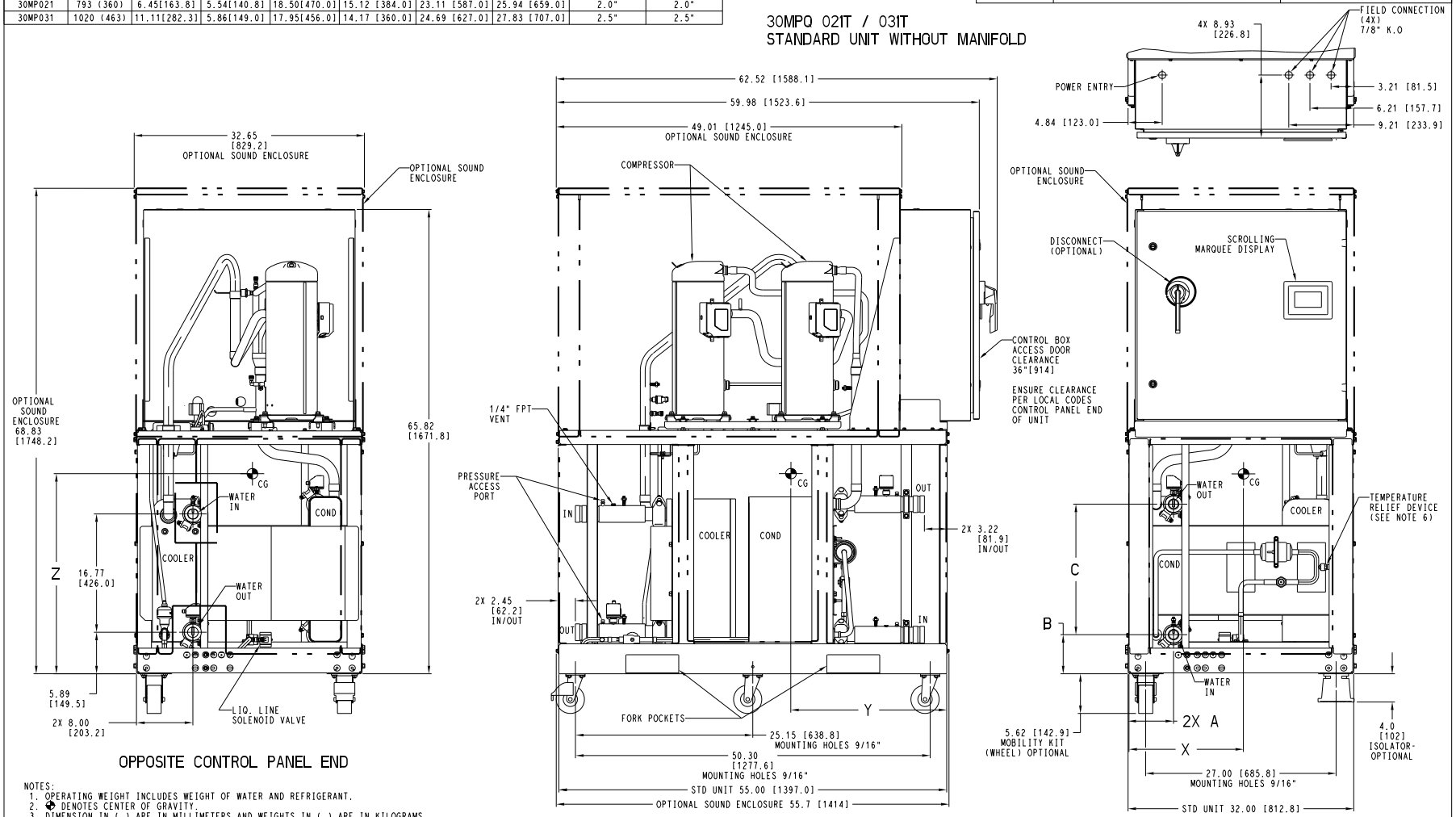
NOTES:
1. OPERATING WEIGHT INCLUDES WEIGHT OF WATER AND REFRIGERANT.
2. ⊕ DENOTES CENTER OF GRAVITY.
3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
4. ALLOW 36" (914.4) CLEARANCE ON CONTROL PANEL END, OPPOSITE CONTROL PANEL END AND ABOVE THE UNIT AND IN ACCORDANCE WITH LOCAL CODE.
5. ——— — — DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. UNIT SHIPPED WITH NITROGEN HOLDING CHARGE. FIELD REMOVAL OF TUBE AND REDUCING COUPLING REQUIRED. CONSULT INSTALLATION INSTRUCTIONS FOR DISCHARGE AND LIQUID PIPE CONNECTION SIZES.
7. TEMPERATURE RELIEF DEVICE LOCATED ON LIQUID LINE. 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	1 OF 4	07/30/24	-	30MPA 017-031T UNIT ASSY -	30MP60000200	B

Dimensions — 30MPQ 021 and 031 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	A	B	C	CENTER OF GRAVITY			COOLER WATER IN / OUT VICTAULIC	COND. WATER IN / OUT VICTAULIC
					X	Y	Z		
30MP021	793 (360)	6.45[163.8]	5.54[140.8]	18.50[470.0]	15.12 [384.0]	23.11 [587.0]	25.94 [659.0]	2.0"	2.0"
30MP031	1020 (463)	11.11[282.3]	5.86[149.0]	17.95[456.0]	14.17 [360.0]	24.69 [627.0]	27.83 [707.0]	2.5"	2.5"

30MPQ 021T / 031T
STANDARD UNIT WITHOUT MANIFOLD

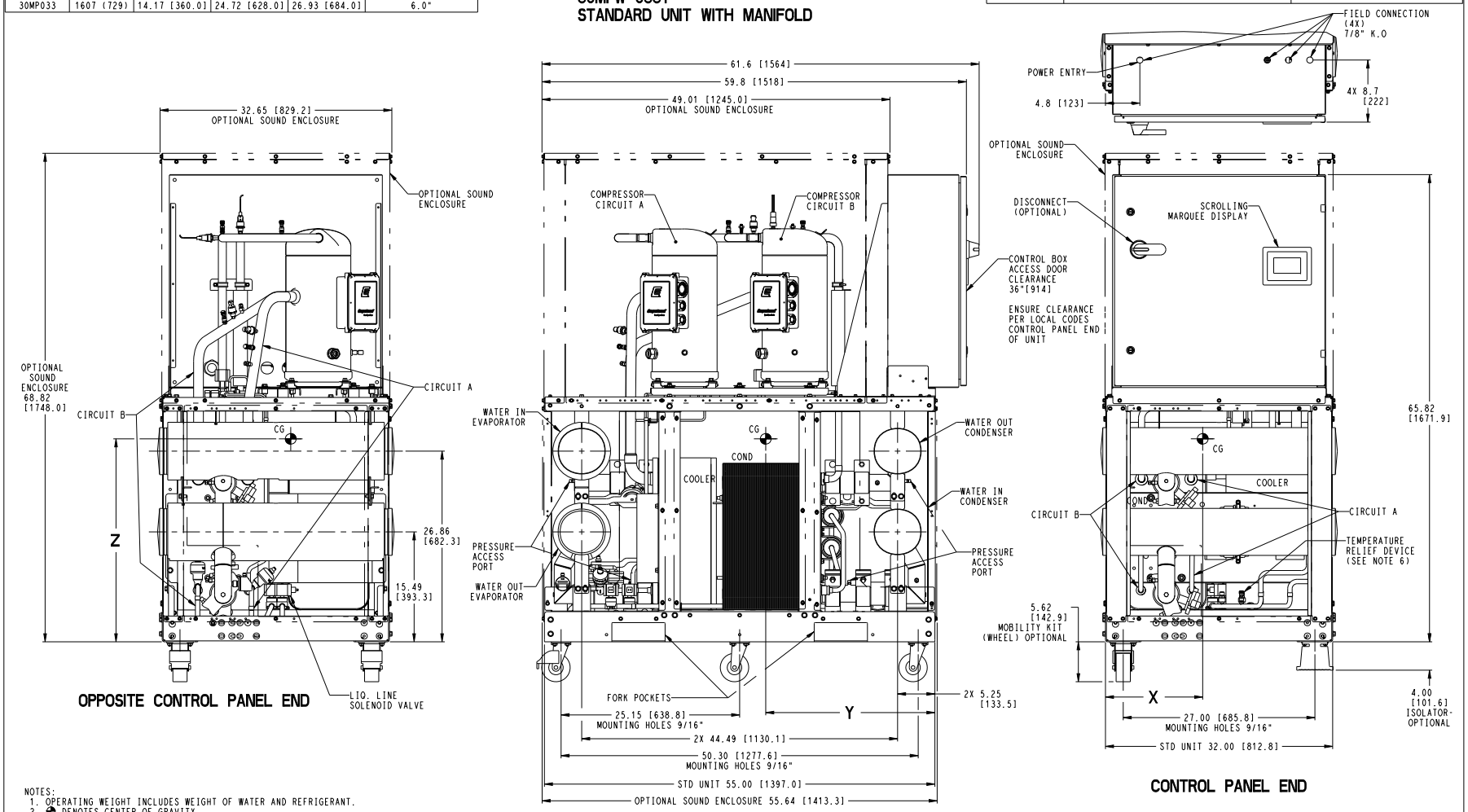


NOTES:
1. OPERATING WEIGHT INCLUDES WEIGHT OF WATER AND REFRIGERANT.
2. ⊕ DENOTES CENTER OF GRAVITY.
3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
4. ALLOW 36" (914.4) CLEARANCE ON CONTROL PANEL END, OPPOSITE CONTROL PANEL END AND ABOVE THE UNIT AND IN ACCORDANCE WITH LOCAL CODE.
5. ——— — — DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. TEMPERATURE RELIEF DEVICE LOCATED ON LIQUID LINE. 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	30MPW 017-031T UNIT ASSY		REV
U.S. ECCN:EAR99	4 OF 4	07/30/24	-	-	30MP60000200	B

Dimensions — 30MPW 033 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	CENTER OF GRAVITY			WATER HEADERS (COND. & COOLER) IN/OUT VICTAULICS
		X	Y	Z	
30MP033	1607 (729)	14.17 [360.0]	24.72 [628.0]	26.93 [684.0]	6.0"

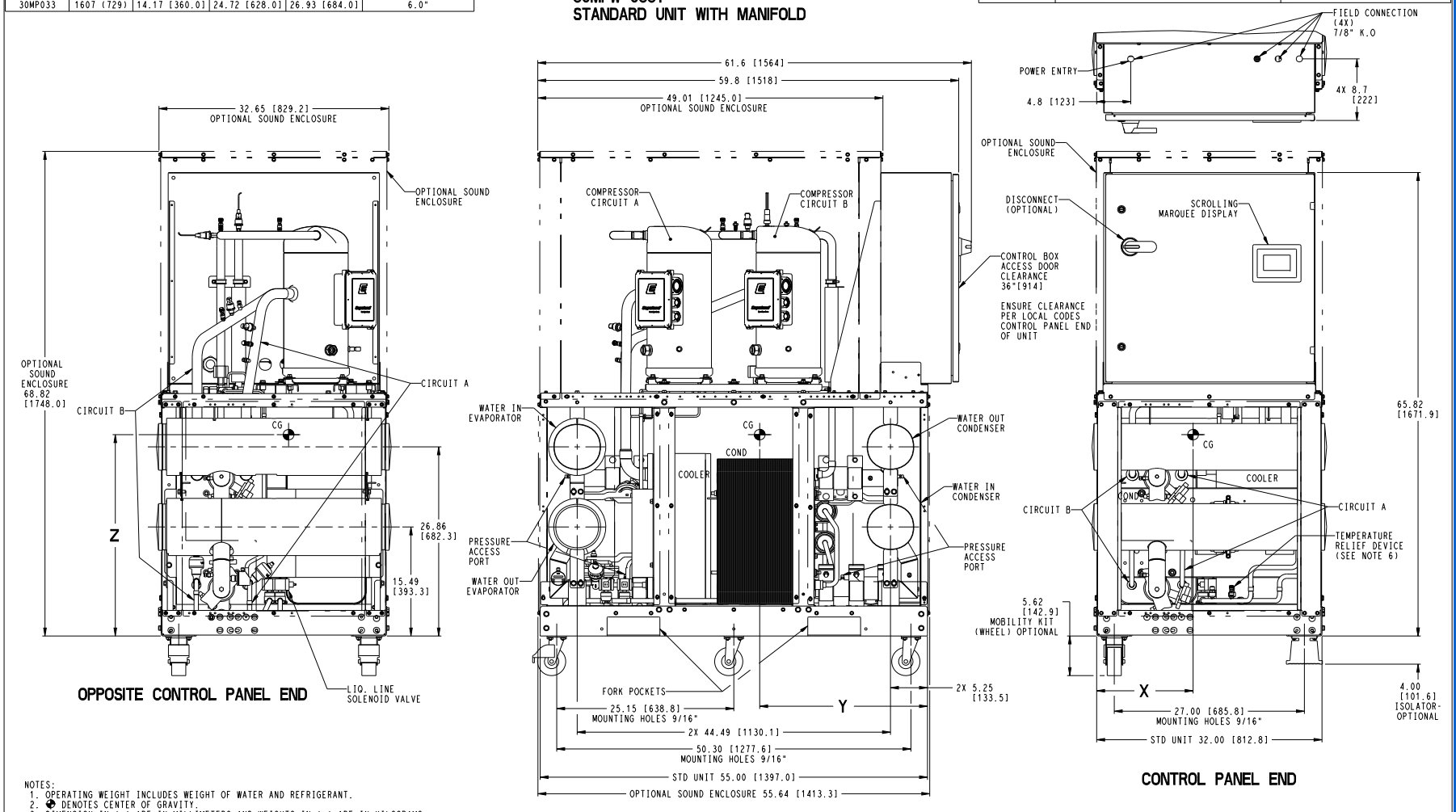


NOTES:
1. OPERATING WEIGHT INCLUDES WEIGHT OF WATER AND REFRIGERANT.
2. ⊕ DENOTES CENTER OF GRAVITY.
3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
4. ALLOW 36" (914.4) CLEARANCE ON CONTROL PANEL END, OPPOSITE CONTROL PANEL END AND ABOVE THE UNIT AND IN ACCORDANCE WITH LOCAL CODE.
5. ———— – – DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. TEMPERATURE RELIEF DEVICE LOCATED ON LIQUID LINE. 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	2 OF 2	09/13/23	-	30MPW 033T UNIT ASSY -	30MP60000300	-

Dimensions — 30MPW 033 With Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	CENTER OF GRAVITY			WATER HEADERS (COND. & COOLER) IN/OUT VICTAULICS
		X	Y	Z	
30MP033	1607 (729)	14.17 [360.0]	24.72 [628.0]	26.93 [684.0]	6.0"



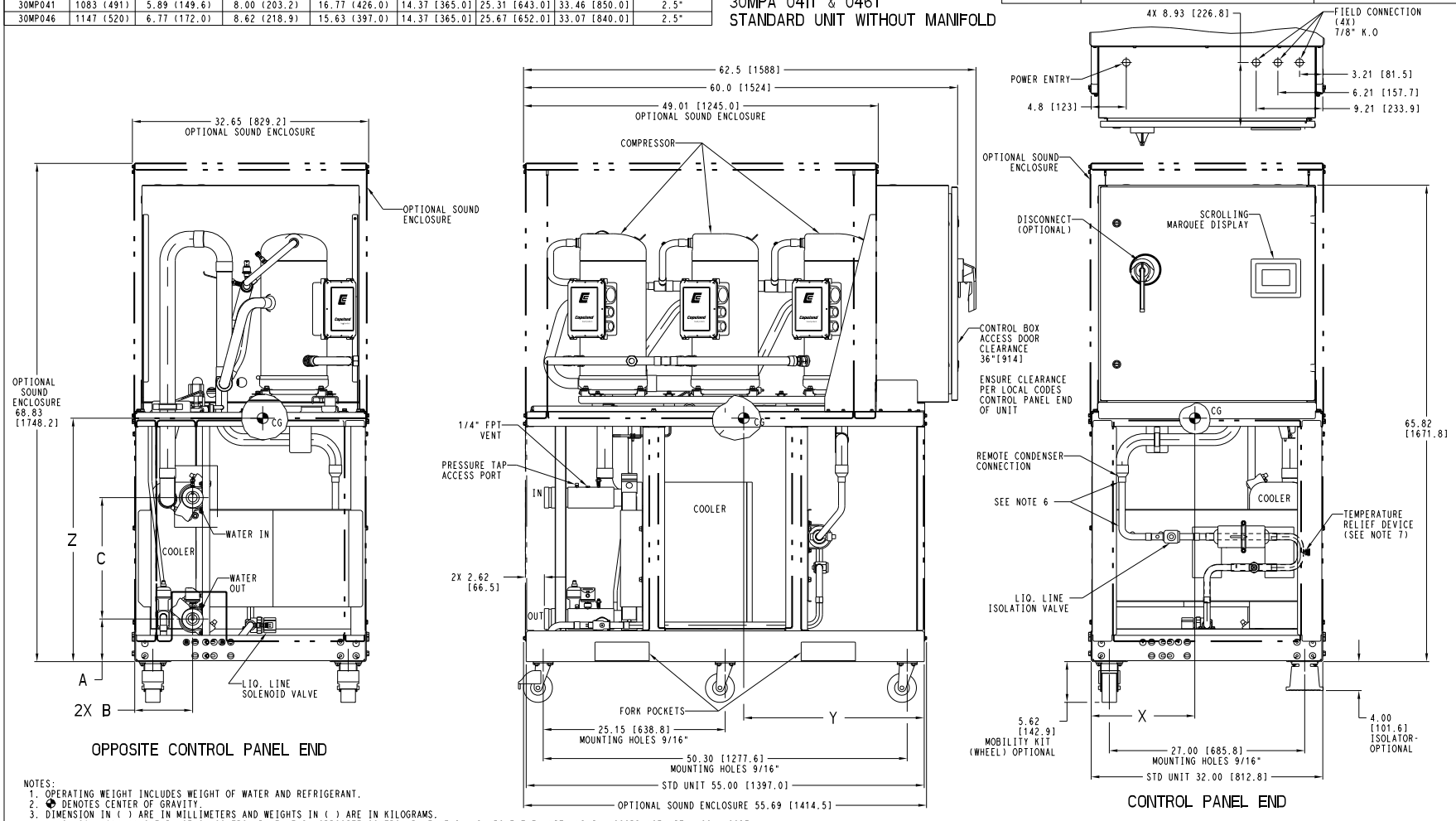
NOTES:
1. OPERATING WEIGHT INCLUDES WEIGHT OF WATER AND REFRIGERANT.
2. ✥ DENOTES CENTER OF GRAVITY.
3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
4. ALLOW 36" (914.4) CLEARANCE ON CONTROL PANEL END, OPPOSITE CONTROL PANEL END AND ABOVE THE UNIT AND IN ACCORDANCE WITH LOCAL CODE.
5. ———— – – DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. TEMPERATURE RELIEF DEVICE LOCATED ON LIQUID LINE. 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	30MPW 033T UNIT ASSY		REV
U.S. ECCN:EAR99	2 OF 2	09/13/23	-	-	30MP60000300	-

Dimensions — 30MPA 041 and 046 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	A	B	C	CENTER OF GRAVITY			COOLER WATER IN / OUT VICTAULIC
					X	Y	Z	
30MP041	1083 (491)	5.89 (149.6)	8.00 (203.2)	16.77 (426.0)	14.37 [365.0]	25.31 [643.0]	33.46 [850.0]	2.5"
30MP046	1147 (520)	6.77 (172.0)	8.62 (218.9)	15.63 (397.0)	14.37 [365.0]	25.67 [652.0]	33.07 [840.0]	2.5"

30MPA 041T & 046T
STANDARD UNIT WITHOUT MANIFOLD

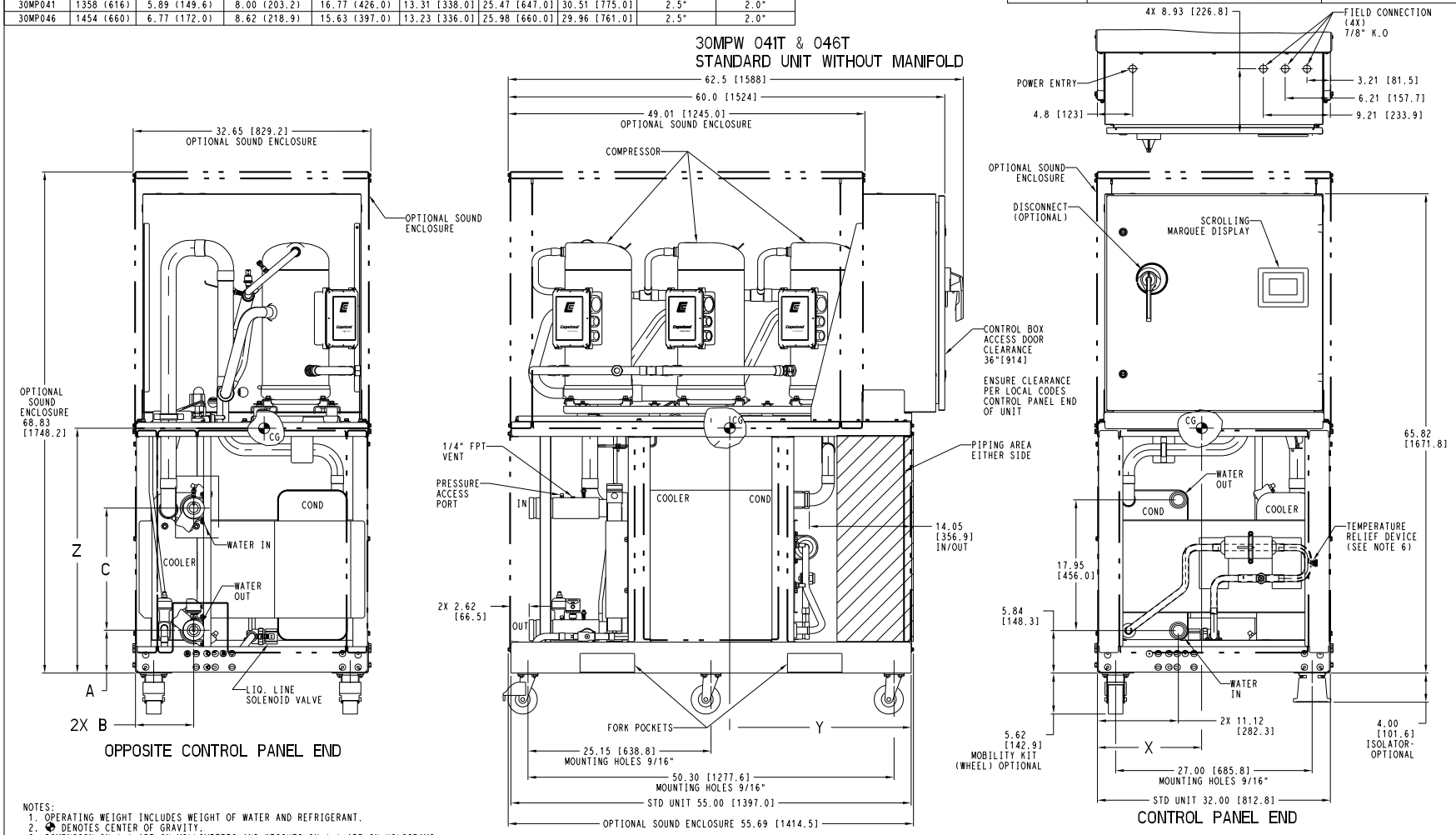


NOTES:
1. OPERATING WEIGHT INCLUDES WEIGHT OF WATER AND REFRIGERANT.
2. ⊕ DENOTES CENTER OF GRAVITY.
3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
4. ALLOW 36" (914.4) CLEARANCE ON CONTROL PANEL END, OPPOSITE CONTROL PANEL END AND ABOVE THE UNIT AND IN ACCORDANCE WITH LOCAL CODE.
5. ——— - - - DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. UNIT SHIPPED WITH NITROGEN HOLDING CHARGE. FIELD REMOVAL OF TUBE AND REDUCING COUPLING REQUIRED. CONSULT INSTALLATION INSTRUCTIONS FOR DISCHARGE AND LIQUID PIPE CONNECTION SIZES.
7. TEMPERATURE RELIEF DEVICE LOCATED ON LIQUID LINE. 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	1 OF 4	08/08/24	-	30MPA 041-046T UNIT ASSY -	30MP60000400	B

Dimensions — 30MPW 041 and 046 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	A	B	C	CENTER OF GRAVITY			COOLER WATER IN / OUT VICTAULIC	COND. WATER IN / OUT VICTAULIC
					X	Y	Z		
30MP041	1358 (616)	5.89 (149.6)	8.00 (203.2)	16.77 (426.0)	13.31 [338.0]	25.47 [647.0]	30.51 [775.0]	2.5"	2.0"
30MP046	1454 (660)	6.77 (172.0)	8.62 (218.9)	15.63 (397.0)	13.23 [336.0]	25.98 [660.0]	29.96 [761.0]	2.5"	2.0"

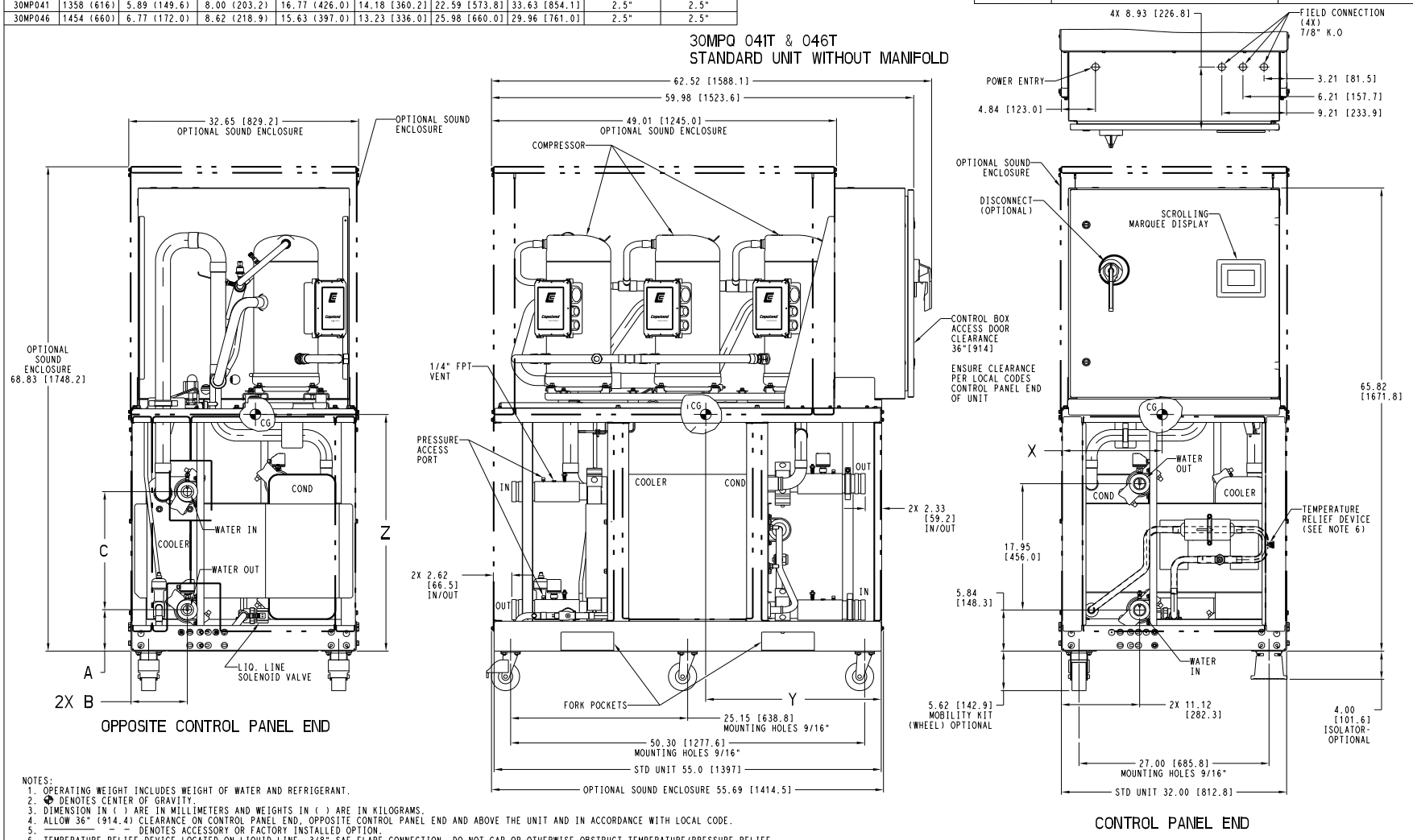


NOTES:
1. OPERATING WEIGHT INCLUDES WEIGHT OF WATER AND REFRIGERANT.
2. ⊕ DENOTES CENTER OF GRAVITY.
3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
4. ALLOW 36" (914.4) CLEARANCE ON CONTROL PANEL END, OPPOSITE CONTROL PANEL END AND ABOVE THE UNIT AND IN ACCORDANCE WITH LOCAL CODE.
5. ——— – – DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. TEMPERATURE RELIEF DEVICE LOCATED ON LIQUID LINE. 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	2 OF 4	08/08/24	-	30MPW 041-046T UNIT ASSY -	30MP60000400	B

Dimensions — 30MPQ 041 and 046 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	A	B	C	CENTER OF GRAVITY			COOLER WATER IN / OUT VICTAULIC	COND. WATER IN / OUT VICTAULIC
					X	Y	Z		
30MP041	1358 (616)	5.89 (149.6)	8.00 (203.2)	16.77 (426.0)	14.18 [360.2]	22.59 [573.8]	33.63 [854.1]	2.5"	2.5"
30MP046	1454 (660)	6.77 (172.0)	8.62 (218.9)	15.63 (397.0)	13.23 [336.0]	25.98 [660.0]	29.96 [761.0]	2.5"	2.5"



NOTES:
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2. ⊕ DENOTES CENTER OF GRAVITY.
3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
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5. ———— — — DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
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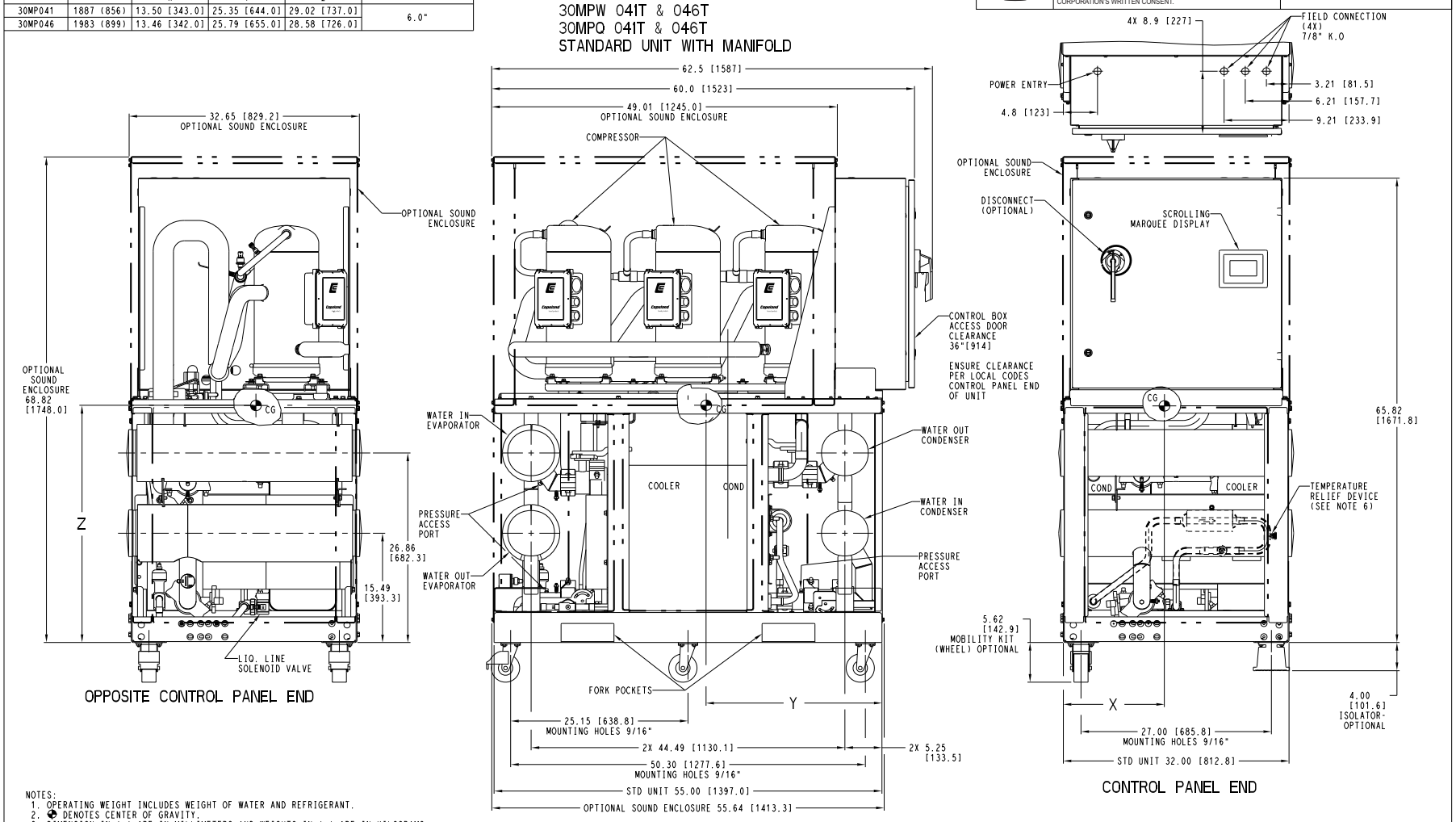
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	4 OF 4	08/08/24	-	30MPW 041-046T UNIT ASSY -	30MP60000400	B

Dimensions — 30MPW,MPQ 041 and 046 With Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	CENTER OF GRAVITY			WATER HEADERS (COND. & COOLER) IN/OUT VICTAULICS
		X	Y	Z	
30MP041	1887 (856)	13.50 [343.0]	25.35 [644.0]	29.02 [737.0]	6.0"
30MP046	1983 (899)	13.46 [342.0]	25.79 [655.0]	28.58 [726.0]	

30MPW 041T & 046T
30MPQ 041T & 046T
STANDARD UNIT WITH MANIFOLD



NOTES:
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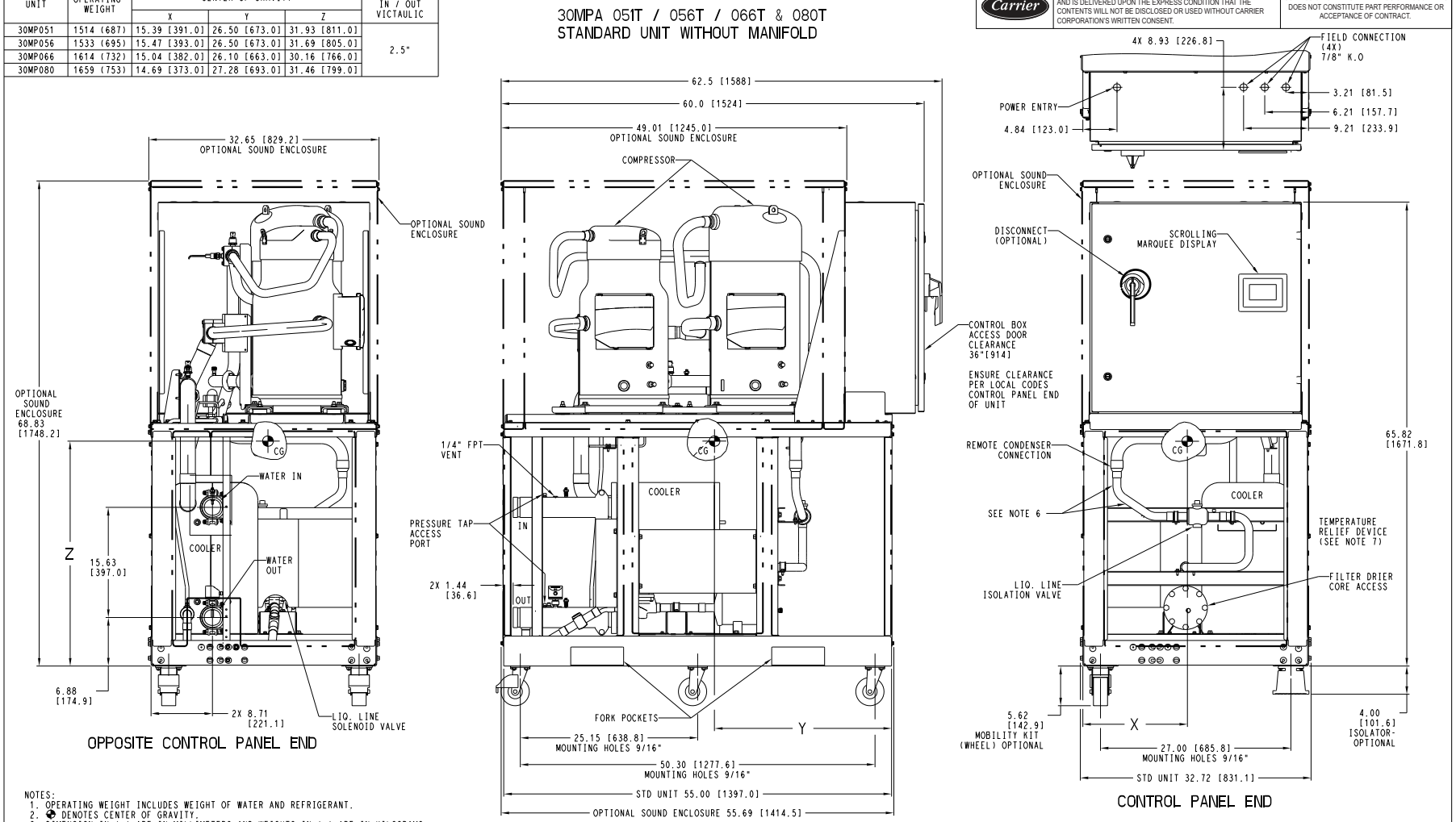
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	3 OF 4	08/08/24	-	30MPW 041-046T UNIT ASSY -	30MP60000400	B

Dimensions — 30MPA 051-080 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	CENTER OF GRAVITY			COOLER WATER IN / OUT VICTAULIC
		X	Y	Z	
30MP051	1514 (687)	15.39 [391.0]	26.50 [673.0]	31.93 [811.0]	2.5"
30MP056	1533 (695)	15.47 [393.0]	26.50 [673.0]	31.69 [805.0]	
30MP066	1614 (732)	15.04 [382.0]	26.10 [663.0]	30.16 [766.0]	
30MP080	1659 (753)	14.69 [373.0]	27.28 [693.0]	31.46 [799.0]	



NOTES:
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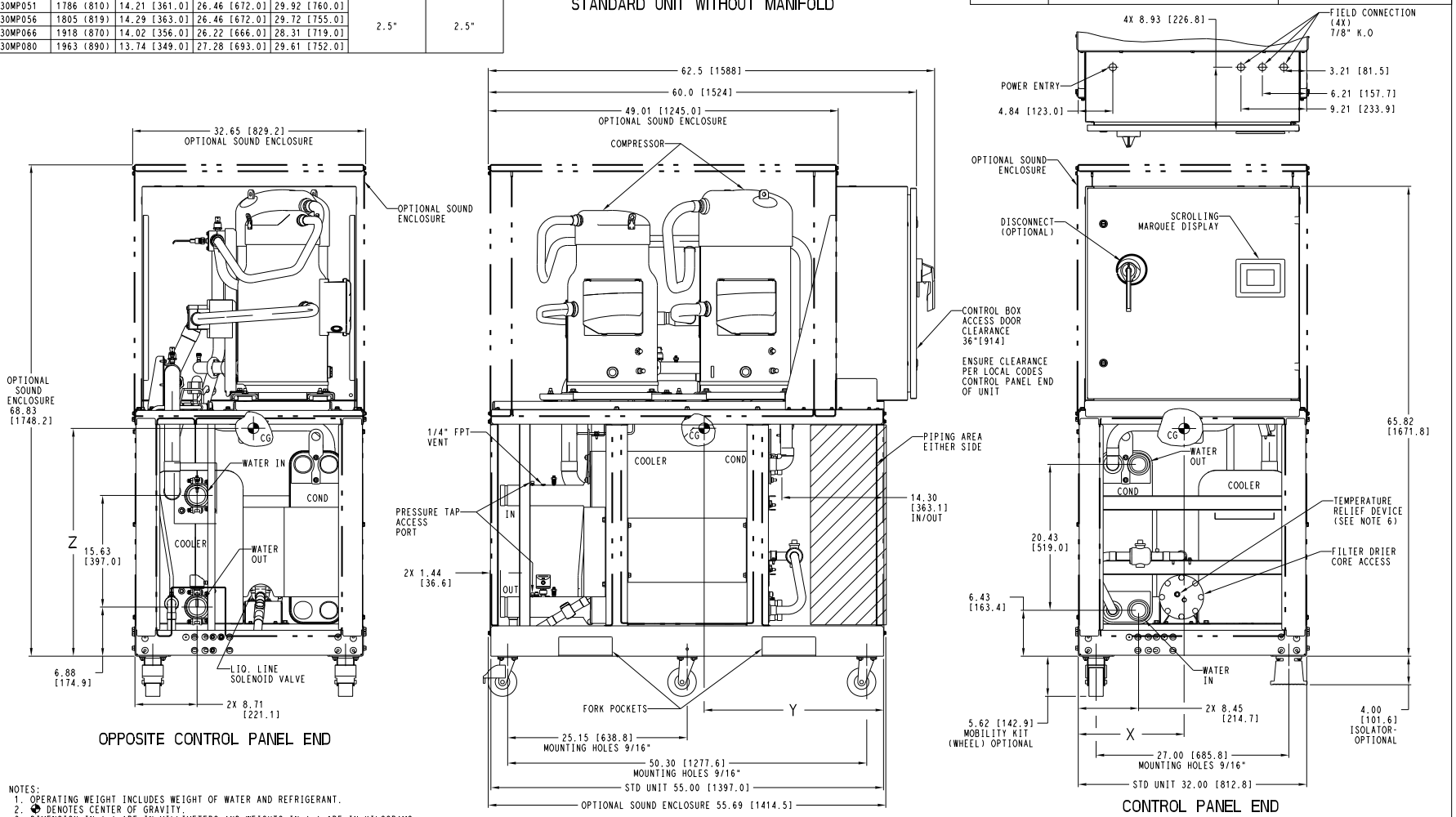
5. ——— — — DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. UNIT SHIPPED WITH NITROGEN HOLDING CHARGE. FIELD REMOVAL OF TUBE AND REDUCING COUPLING REQUIRED. CONSULT INSTALLATION INSTRUCTIONS FOR DISCHARGE AND LIQUID PIPE CONNECTION SIZES.
7. TEMPERATURE RELIEF DEVICE LOCATED ON FILTER DRIER, 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	1 OF 4	08/08/24	-	30MPA 051-080T UNIT ASSY -	30MP60000500	B

Dimensions — 30MPW 051-080 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	CENTER OF GRAVITY			COOLER WATER IN / OUT VICTAULIC	COND. WATER IN / OUT VICTAULIC
		X	Y	Z		
30MP051	1786 (810)	14.21 [361.0]	26.46 [672.0]	29.92 [760.0]	2.5"	2.5"
30MP056	1805 (819)	14.29 [363.0]	26.46 [672.0]	29.72 [755.0]		
30MP066	1918 (870)	14.02 [356.0]	26.22 [666.0]	28.31 [719.0]		
30MP080	1963 (890)	13.74 [349.0]	27.28 [693.0]	29.61 [752.0]		

30MPW 051T / 056T / 066T & 080T
STANDARD UNIT WITHOUT MANIFOLD



NOTES:
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3. DIMENSION IN ( ) ARE IN MILLIMETERS AND WEIGHTS IN ( ) ARE IN KILOGRAMS.
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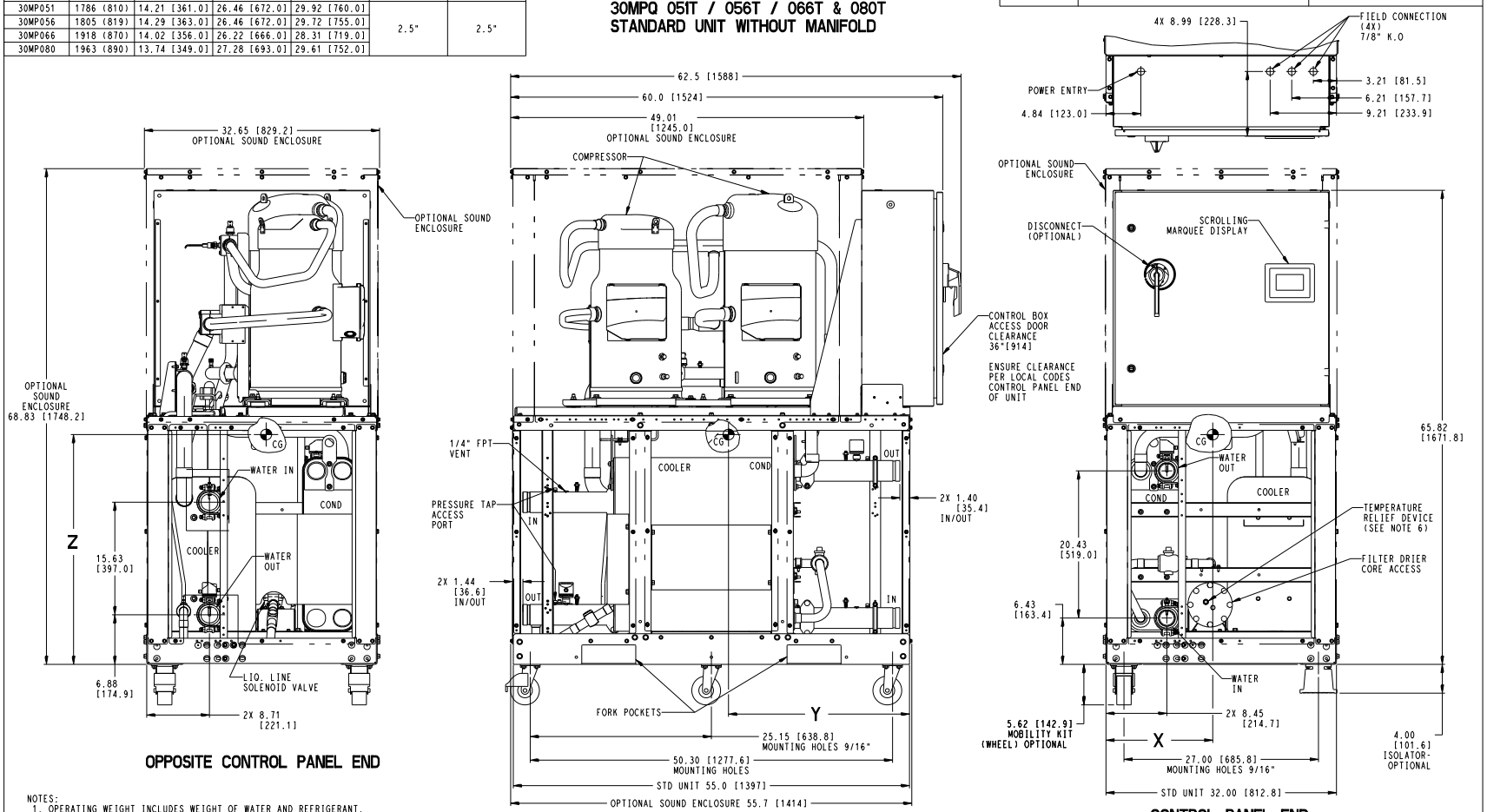
5. ——— – – DENOTES ACCESSORY OR FACTORY INSTALLED OPTION.
6. TEMPERATURE RELIEF DEVICE LOCATED ON FILTER DRIER, 3/8" SAE FLARE CONNECTION. DO NOT CAP OR OTHERWISE OBSTRUCT TEMPERATURE/PRESSURE RELIEF.

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	2 OF 4	08/08/24	-	30MPW 051-080T UNIT ASSY -	30MP60000500	B

Dimensions — 30MPQ 051-080 Without Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	CENTER OF GRAVITY			COOLER WATER IN / OUT VICTAULIC	COND. WATER IN / OUT VICTAULIC
		X	Y	Z		
30MP051	1786 (810)	14.21 [361.0]	26.46 [672.0]	29.92 [760.0]	2.5"	2.5"
30MP056	1805 (819)	14.29 [363.0]	26.46 [672.0]	29.72 [755.0]		
30MP066	1918 (870)	14.02 [356.0]	26.22 [666.0]	28.31 [719.0]		
30MP080	1963 (890)	13.74 [349.0]	27.28 [693.0]	29.61 [752.0]		

30MPQ 051T / 056T / 066T & 080T
STANDARD UNIT WITHOUT MANIFOLD



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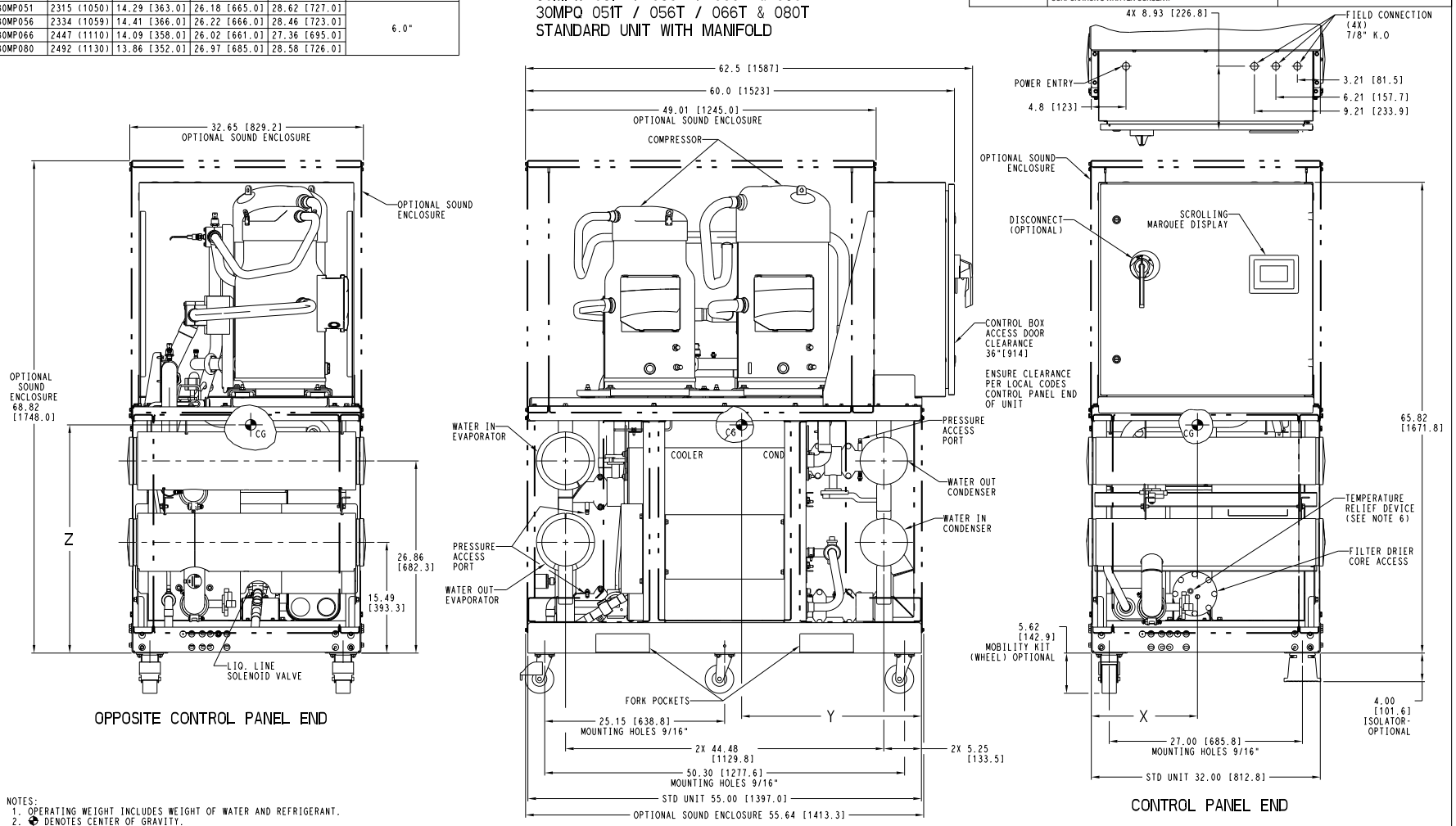
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	4 OF 4	08/08/24	-	30MPW 051-080T UNIT ASSY -	30MP60000500	B

Dimensions — 30MPW,MPQ 051-080 With Manifold (Standard Unit)

UNIT	OPERATING WEIGHT	CENTER OF GRAVITY			WATER HEADERS (COND. & COOLER) IN/OUT VICTAULIC
		X	Y	Z	
30MP051	2315 (1050)	14.29 [363.0]	26.18 [665.0]	28.62 [727.0]	6.0"
30MP056	2334 (1059)	14.41 [366.0]	26.22 [666.0]	28.46 [723.0]	
30MP066	2447 (1110)	14.09 [358.0]	26.02 [661.0]	27.36 [695.0]	
30MP080	2492 (1130)	13.86 [352.0]	26.97 [685.0]	28.58 [726.0]	

30MPW 051T / 056T / 066T & 080T
30MPQ 051T / 056T / 066T & 080T
STANDARD UNIT WITH MANIFOLD



NOTES:
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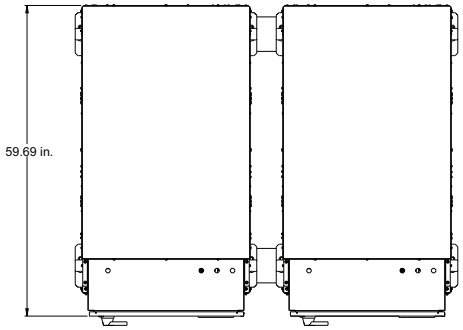
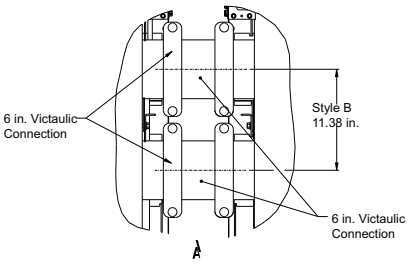
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:EAR99	3 OF 4	08/08/24	-	30MPW 051-080T UNIT ASSY -	30MP60000500	B

Dimensions (cont)

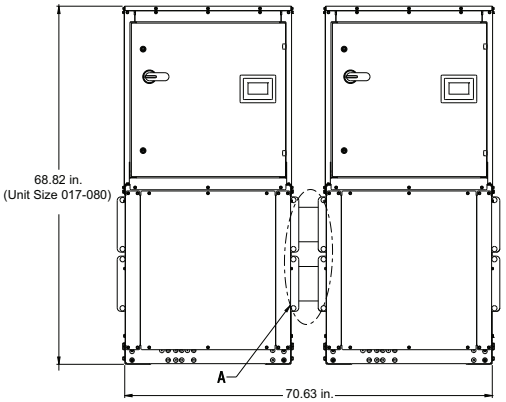
Dimensions — 30MP Chiller Units Manifolded Together with Accessory Spacer Pipe (30MPW046 Shown)



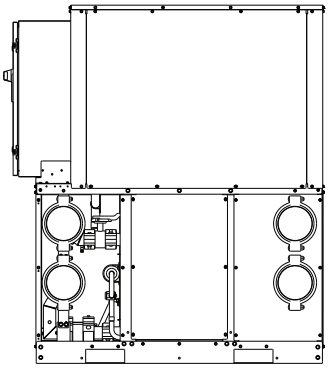
Top View



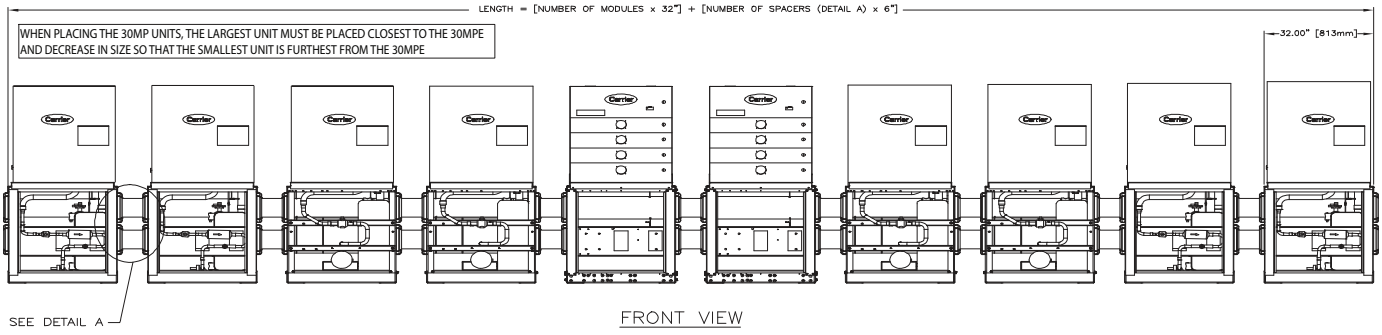
Corner Post
(Removed for clarity)



Front View

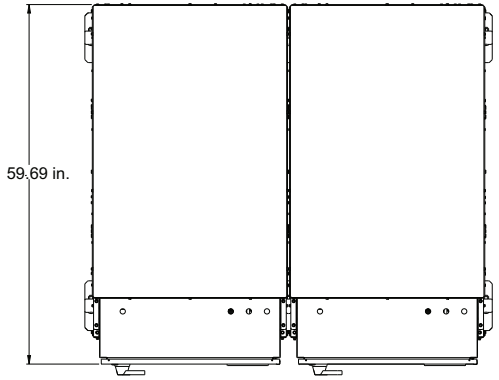


Side View

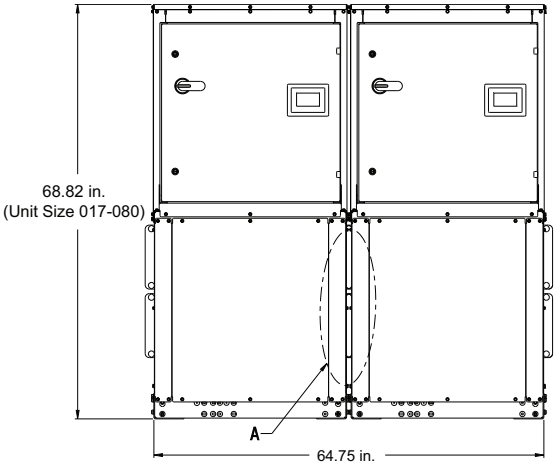


NOTE: These figures show the sound enclosure panels, these are not currently available.

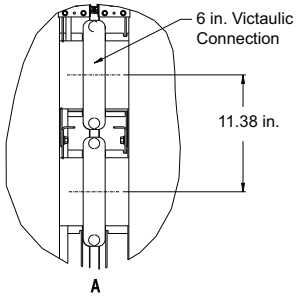
Dimensions — 30MP Chiller Units Manifolded Together without Accessory Spacer Pipe (30MPW046 Shown)



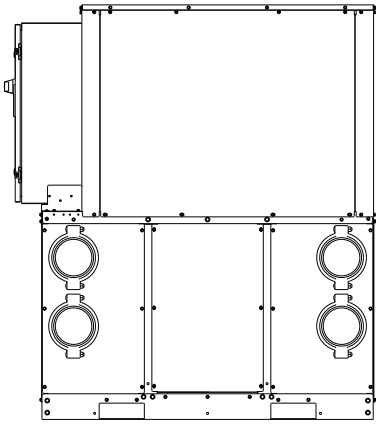
Top View



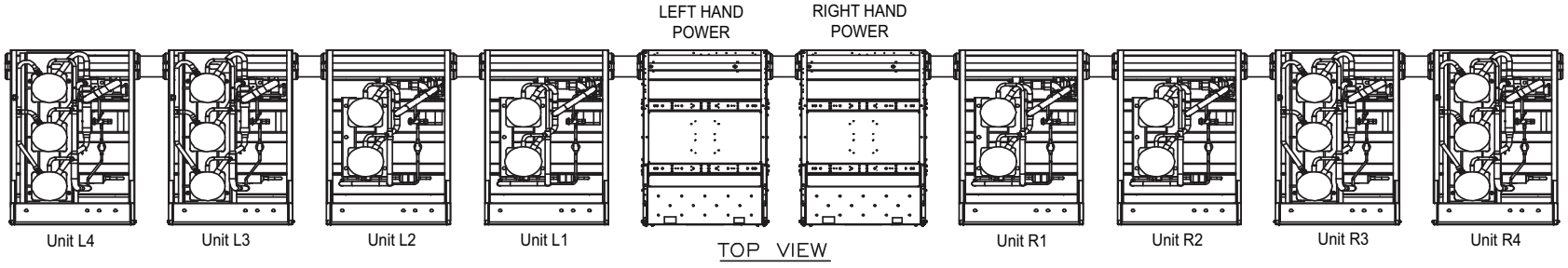
Front View



Corner Post
(Removed for clarity)



Side View



Application data

Unit storage

This unit uses R-32 refrigerant classified as A2L semi-flammable. Unit should be stored outdoors unless placed in an equipment room as defined by ASHRAE 15 or space large enough to dissipate a refrigerant leak. Requirements for storage and installation are defined in the unit installation manual. Inspect under shipping tarps, bags, or crates to be sure water has not collected during transit. Keep protective shipping covers in place until machine is ready for installation.

Unit location

Unit should be level (particularly in its major lengthwise dimension) to ensure proper oil return. It should be determined prior to installation if any special treatment is required to ensure a level installation.

The unit should be located indoors in an area where the temperature is between 50 and 104°F (10 and 40°C).

Evaporator fluid temperature

1. *Maximum* sustained leaving chilled-fluid temperature (LCWT) is 60°F (16°C). For sustained operation, entering-fluid temperature should not exceed 75°F (23.9°C). Unit can start and pull down with up to 95°F (35°C) entering-fluid temperature due to the pressure limiting feature of the expansion valve.
2. *Minimum* LCWT for standard units is 32°F (0°C). For temperatures above 32°F (0°C) and below 40°F (4°C), ensure the chilled water loop has a suitable brine solution. For applications with LCWT below 32°F (0°C) the medium temperature brine option must be selected. Refer to Medium Temperature Brine Option section.

Medium temperature brine option (required for LCWT 15 to 32°F [–9.4 to 0.0°C])

For all applications with LCWT below 40°F (4°C), a suitable brine (or antifreeze and water solution) must be provided to ensure freeze protection. The solution crystallization point of the brine should be below the suction temperature of the evaporator, and at least 15°F (8.3°C) below the leaving brine temperature. The brine solution must also be properly inhibited to provide suitable corrosion protection. For applications with LCWT below 32°F (0°C), the 30MP unit requires factory modification and the medium brine temperature option must be selected.

Condenser water temperature

Below are the maximum condenser leaving water temperatures. These values are based on an evaporator maximum leaving water temperature of 60°F.

30MPW/Q021-031, 30MPW/Q041-046, 30MPW/Q051-080: *Maximum* leaving condenser-water temperature is 140°F (60°C) (130°F with the digital scroll option).

Evaporator and liquid-cooled condenser flow range

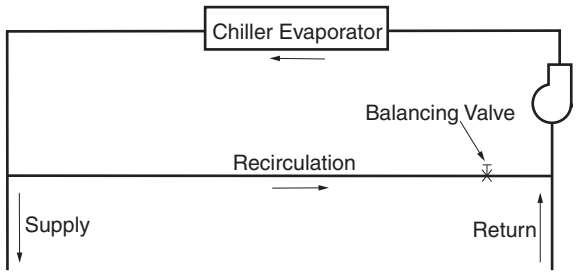
Ratings and performance data in this publication are for a cooling temperature rise of 10°F (5.6°C) and are suitable for a range from 5 to 15°F (2.7 to 8.3°C) temperature rise without adjustment. Units may be operated at a different temperature range, provided flow limits are not exceeded and corrections to capacity, etc. are made. For minimum flow rates, see Minimum Evaporator and Condenser Flow Rates and Minimum Fluid Volume in Circulation tables on page 31. High flow rate is limited by the pressure drop that can be tolerated.

Minimum evaporator flow

The minimum evaporator flow (maximum evaporator temperature rise) for standard units is shown in Minimum Evaporator and Condenser Flow Rates and Minimum Fluid Volume In Circulation tables on page 32. When gpm (L/s) required is lower (or rise is higher), follow these recommendations:

1. Multiple smaller chillers may be applied in series, each providing a portion of the design temperature rise.
2. Chilled fluid may be recirculated to raise flow rate. However, the mixed temperature entering evaporator must be maintained at a minimum of at least 5°F (2.8°C) above the leaving chilled fluid temperature. Recirculation flow is shown below.

Recirculation Flow



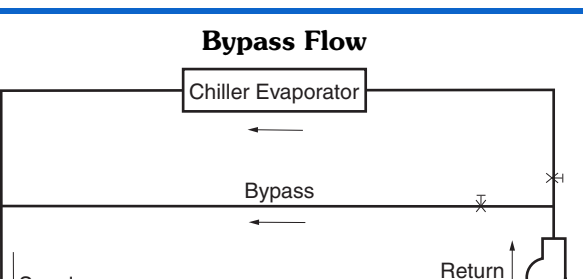
Maximum evaporator flow (5 gpm/ton or < 5°F rise [0.09 L/s • kW or < 2.7 C rise])

The maximum evaporator flow results in practical maximum pressure drop through evaporator.

The return fluid may bypass the evaporator to keep pressure drop through the evaporator within acceptable limits. This permits a higher ΔT with lower fluid flow through evaporator and mixing after evaporator.

Bypass flow is shown below.

Bypass Flow



Variable evaporator flow rates

These variable rates may be applied to standard chillers. However, the unit will attempt to maintain a constant leaving chilled-fluid temperature. In such cases, minimum fluid loop volume must be in excess of 3 gallons per ton (3.2 L per kW), and flow rate must change in steps of less than 10% per minute. Apply 6 gallons per ton (6.5 L per kW) fluid loop volume minimum if flow rate changes more rapidly.

Application data (cont)

Minimum liquid-cooled condenser flow

This value (maximum rise) is shown in Minimum Evaporator and Condenser Flow Rates and Minimum Fluid Volume in Circulation tables below. Condensers may be piped in series. Ensure leaving-water temperature does not exceed the maximum allowed as listed in Condenser Water Temperature on.

Chilled fluid loop volume

For temperature stability and accuracy, the minimum fluid loop volume in circulation must equal or exceed the values listed in the Minimum Evaporator and Condenser Flow Rates and Minimum Fluid Volume in Circulation tables below.

Minimum Evaporator and Condenser Flow Rates

UNIT SIZE	EVAPORATOR		CONDENSER	
	Gal/Min	L/s	Gal/Min	L/s
30MP017	22	1.4	22	1.4
30MP021	28	1.8	30	1.9
30MP031	43	2.7	46	2.9
30MP033	43	2.7	46	2.9
30MP041	55	3.5	58	3.7
30MP046	64	4.0	69	4.4
30MP051	70	4.5	74	4.7
30MP056	77	4.9	79	5.0
30MP066	84	5.4	99	6.2
30MP080	91	5.8	118	7.4

Minimum Fluid Volume in Circulation

30MP UNIT SIZE	NORMAL AIR CONDITIONING APPLICATION gal/ton (L per kW)			PROCESS COOLING OR LOW AMBIENT OPERATION APPLICATION gal/ton (L per kW)		
	Std Unit	HGBP	Digital	Std Unit	HGBP	Digital
017,021,031,033	6 (6.5)	4 (4.3)	3 (3.3)	10 (10.8)	10 (10.8)	6 (6.5)
041,046	3 (3.3)	3 (3.3)	3 (3.3)	6 (6.5)	6 (6.5)	6 (6.5)
051,056,066,080	6 (6.5)	4 (4.3)	—	10 (10.8)	10 (10.8)	—

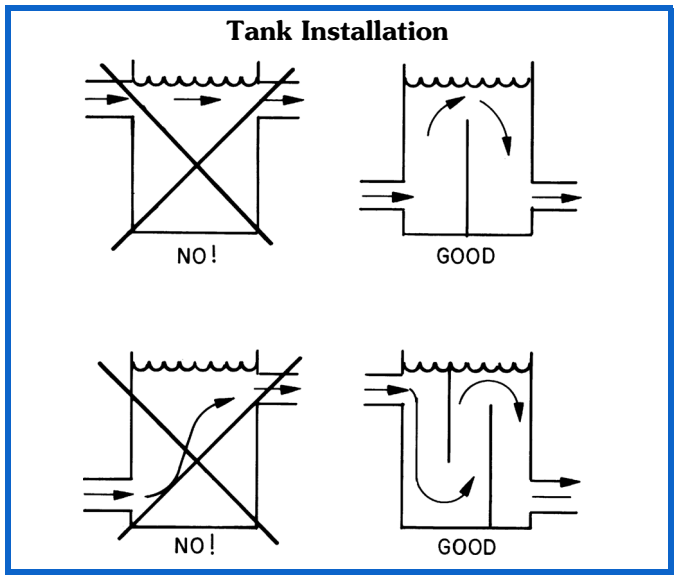
LEGEND

HGBP — Hot Gas Bypass

For process jobs where accuracy is vital or for operation at outdoor ambient temperatures below 32°F (0°C) with low unit loading conditions, there should be from 6 to 10 gal. per ton (6.5 to 10.8 L per kW). To achieve this volume, it is often necessary to install a tank in the loop. The tank should be baffled to ensure there is no stratification, and that water (or brine) entering the tank is adequately mixed with liquid in the tank.

Fouling factor

The factor used to calculate tabulated ratings was 0.00010 $ft^2 \cdot hr \cdot F/Btuh$ (0.000018 $m^2 \cdot k/W$). As fouling factor is increased, unit capacity decreases and compressor power increases. To determine selections at other fouling factors, use the chiller selection program.



30MPA remote condenser requirements

1. If multiple units are connected to a single condenser, ensure each refrigerant circuit has its own head pressure control.
2. Condenser must provide 15°F (8.3°C) subcooling, a maximum of 40°F (22.2°C) difference between saturated condensing temperature and outdoor ambient temperature (to prevent overload at high ambient temperatures), and a minimum of 20°F (11.1°C) difference (to ensure subcooling).
3. Do not manifold independent refrigerant circuits into a single condenser.
4. If air-cooled condenser is located below chiller, refer to the condenser manufacturer's performance data for available liquid lift.
5. Refer to condenser installation instructions for location guidelines.

NOTE: The remote condenser should be rated for the same pressure as the high pressure switch on the 30MPA.

Oversizing chillers

Oversizing chillers by more than 15% at design conditions must be avoided as the system operating efficiency should not be adversely affected (resulting in greater and/or excessive electrical demand and cycling of compressors). When future expansion of equipment is anticipated, install a single chiller to meet present load requirements and install a second chiller to meet the additional load demand.

It is also recommended that the installation of 2 smaller chillers be considered where operation at minimum load is critical. The operation of a smaller chiller loaded to a greater percent of minimum is preferred, rather than operating a single chiller at or near its minimum recommended value.

Hot gas bypass should not be used as a means to allow oversizing chillers. Hot gas bypass should be given consideration where substantial operating time is anticipated below the minimum unloading step.

Strainers

A 40 mesh strainer must be installed in the evaporator and condenser fluid inlet lines, within 10 ft (3 m) of the heat exchanger in each line, between the pump and the chiller.

Application data (cont)

Parallel chillers

When required chiller capacity is greater than can be supplied by a single 30MP chiller, or where stand-by capability is desired, chillers may be installed in parallel. Units may be of the same or different sizes. However, evaporator and condenser flow rates must be balanced to ensure proper flow to each chiller. When the optional water manifold kit is selected, as is required by selection of the multi-unit controller, or multi-chiller controller, the chillers are piped in parallel.

Series chillers

Where a large temperature drop (greater than 25°F [13.9°C]) is desired and higher fluid pressure drop across the evaporator can be tolerated, chillers may be installed in series. The leaving fluid temperature sensors need not be relocated. However, the evaporator minimum entering fluid temperature limitations should be considered for the chillers located downstream of other chillers. Condensers should be piped in parallel to maximize capacity and efficiency. This should also minimize condenser pressure drop and saturated condensing temperatures. However, if condensers are piped in series, ensure that the leaving water temperature does not exceed 140°F (60.0°C). NOTE: For 017 and 033 models, the leaving water temperature cannot exceed 115°F (43.3°C) or 104°F (40°C), respectively.

Energy management

Demand limiting and load shedding are popular techniques used to reduce peak electric demands typically experienced during hot summer days; when air conditioning loads are highest. When utility electricity demands exceed a certain level, electrical loads are turned off to keep the peak demands below a prescribed maximum limit. Unit unloading will reduce electrical demand while allowing the chiller to operate under part-load capacity and maintain partial chilled fluid cooling. The energy management module can be added to accomplish this.

Electrical demand may be limited by unloading the chiller to a predetermined percentage of the load. One stage of unloading can be initiated by a remote signal to significantly reduce the chiller power consumption. This power reduction applies to the full load power at nominal conditions. The demand limit control should not be cycled less than 10 minutes on and 5 minutes off.

Vibration isolation

All compressors are isolated. External vibration isolation is not generally required, but is available for 30MP units as an accessory, if desired.

Evaporator and liquid-cooled condenser freeze protection

If chiller or fluid lines are in an area where ambient conditions fall below 40°F (4.4°C), it is recommended that an antifreeze (brine) solution be added to protect the unit and fluid piping to a temperature 15°F (8.3°C) below the lowest anticipated ambient temperature. In applications where the leaving evaporator fluid temperature is below 32°F (0°C), the medium temperature brine option should be selected so that the freeze point is at least 15°F (8.3°C) below the evaporator leaving fluid temperature and below the suction temperature at the evaporator.

IMPORTANT: Only use antifreeze solutions approved for heat exchanger duty. Use of automotive antifreezes is not recommended because of the fouling that can occur once their relatively short-lived inhibitor breaks down.

If not protected with an antifreeze solution, draining evaporator and outdoor piping is recommended if system is not to be used during freezing weather conditions.

Water system overview

A system installed incorrectly such that air is not handled properly can develop pipe leaks, vent leaks, or air in pipes, and may behave as an open system and thus have unsatisfactory operation. Pump seal wear can also cause leaks that cause poor system operation.

Proper system design and installation procedures should be followed closely. The system must be constructed with pressure tight components and thoroughly tested for installation leaks.

Installation of water systems should follow sound engineering practice as well as applicable local and industry standards. Improperly designed or installed systems may cause unsatisfactory operation and/or system failure. Consult a water treatment specialist or appropriate literature for information regarding filtration, water treatment, and control devices.

Water quality should be maintained within the limits indicated in the Water Quality Characteristics and Limitations table.

Water Quality Characteristics and Limitations

WATER CHARACTERISTIC	QUALITY LIMITATION
Alkalinity (HCO_3^-)	70 – 300 ppm
Sulfate (SO_4^{2-})	Less than 70 ppm
HCO_3^-/SO_4^{2-}	Greater than 1.0
Electrical Conductivity	10 – 500 μS/cm
pH	7.5 – 9.0
Ammonium (NH_3)	Less than 2 ppm
Chlorides (Cl^-)	Less than 300 ppm
Free Chlorine (Cl_2)	Less than 1 ppm
Hydrogen Sulfide (H_2S)[a]	Less than 0.05 ppm
Free (aggressive) Carbon Dioxide (CO_2)[b]	Less than 5 ppm
Total Hardness (dH)	4.0 – 8.5
Nitrate (NO_3)	Less than 100 ppm
Iron (Fe)	Less than 0.2 ppm
Aluminum (Al)	Less than 0.2 ppm
Manganese (Mn)	Less than 0.1 ppm

NOTE(S):

a. Sulfides in the water quickly oxidize when exposed to air, requiring that no agitation occur as the sample is taken. Unless tested immediately at the site, the sample will require stabilization with a few drops of one Molar zinc acetate solution, allowing accurate sulfide determination up to 24 hours after sampling. A low pH and high alkalinity cause system problems, even when both values are within the ranges shown.
The term pH refers to the acidity, basicity, or neutrality of the water supply. Below 7.0 pH, the water is considered to be acidic. Above 7.0 pH, water is considered to be basic. Neutral water contains a pH of 7.0.

b. Dissolved carbon dioxide can either be calculated from the pH and total alkalinity values (shown below) or measured on the site using a test kit. Dissolved Carbon Dioxide, PPM = TA x 2[(6.3-pH)/0.3] where TA = Total Alkalinity, PPM as CaCO3.

Application data (cont)

30MPA Refrigerant Piping

Single Circuit Line 30MPA Line Sizing Chart[a,b]

30MPA UNIT	UNIT REFRIGERANT CONNECTIONS (CHILLER CONNECTION SIZE) ODS		TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE ft (m)					
			0-50 (0-15.4) Equiv. Pipe Length = 75 ft		50-100 (15.4-30.5) Equiv. Pipe Length = 150 ft		100-200 (30.5-61.0) Equiv. Pipe Length = 300 ft	
	L (in.)	D (in.)	L (in.)	D (in.)	L (in.)	D (in.)	L (in.)	D (in.)
021	1/2	1-3/8	5/8	1-3/8	5/8	1-3/8	7/8	1-3/8
031	5/8	1-3/8	7/8	1-3/8	7/8	1-3/8	7/8	1-3/8
041	5/8	1-5/8	7/8	1-5/8	7/8	1-5/8	1-1/8	1-5/8
046	5/8	1-5/8	7/8	1-5/8	7/8	1-5/8	1-1/8	1-5/8
051	1-1/8	1-5/8	1-1/8	1-5/8	1-1/8	2-1/8	1-3/8	2-1/8
056	1-1/8	1-5/8	1-1/8	1-5/8	1-1/8	2-1/8	1-3/8	2-1/8
066	1-1/8	1-5/8	1-1/8	2-1/8	1-1/8	2-1/8	1-3/8	2-5/8
080	1-1/8	1-5/8	1-1/8	2-1/8	1-1/8	2-1/8	1-3/8	2-5/8

NOTE(S):

a. Shaded areas indicate double discharge riser required if unit is equipped with hot gas bypass or operation below 40°F (4.4°C) LWT (leaving water [fluid] temperature).
b. Use Type K tubing for discharge lines with 1-5/8 in. OD or larger. This is required for the elevated temperatures associated with R-32 refrigerant.

LEGEND

D — Discharge Line Size (discharge line size is equal to the chiller connection size).
L — Liquid Line Size (liquid line size is equal to or greater than the chiller connection size).

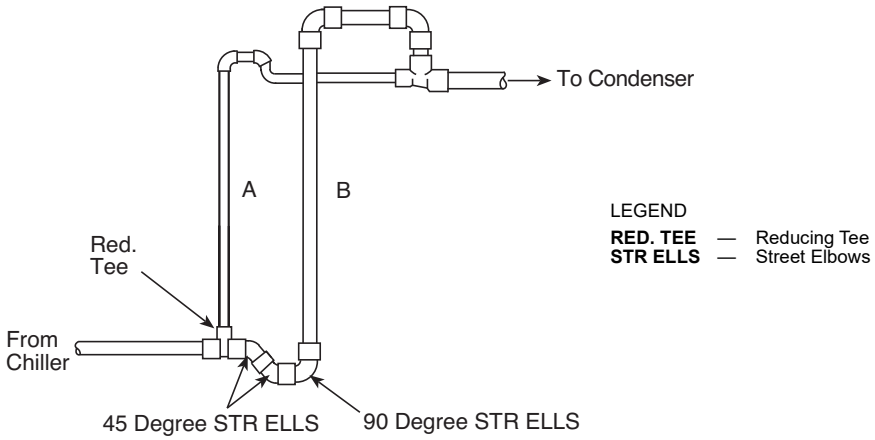
Double Discharge Riser Data

30MPA UNIT	TOTAL LINEAR LENGTH OF INTERCONNECTING PIPE ft (m)		MINIMUM TONNAGE WITH DOUBLE RISER
	0 - 200 (0 - 61.0)		
	Riser A D (in.)	Riser B D (in.)	
021	7/8	1-1/8	1.86
031	7/8	1-1/8	1.86
041	7/8	1-3/8	1.86
046	7/8	1-3/8	1.86
051	1-5/8	1-5/8	3.16
056	1-5/8	1-5/8	3.16
066	1-5/8	2-1/8	3.16
080	1-5/8	2-1/8	3.16

Liquid Line Refrigerant Chart

PIPE DIAMETER (in.)	POUNDS PER 10 LINEAR FEET (kg per 3 m)
1/2	0.6 (0.27)
5/8	1.0 (0.45)
7/8	2.0 (0.91)
1-1/8	3.5 (1.58)
1-3/8	5.1 (2.32)

Double Discharge Riser Construction Detail



Application data (cont)

Insulation

Insulation for 30MP units includes factory-installed compressor insulation and factory-installed insulation of suction line to compressors, evaporator, and expansion valve and the line running from expansion valve to evaporator. Field-supplied and installed insulation is recommended for water lines.

As indicated in the Condensation vs Relative Humidity table, the factory insulation provides excellent protection against condensation under most operating conditions. If temperatures in the equipment area exceed the maximum design conditions, extra insulation is recommended.

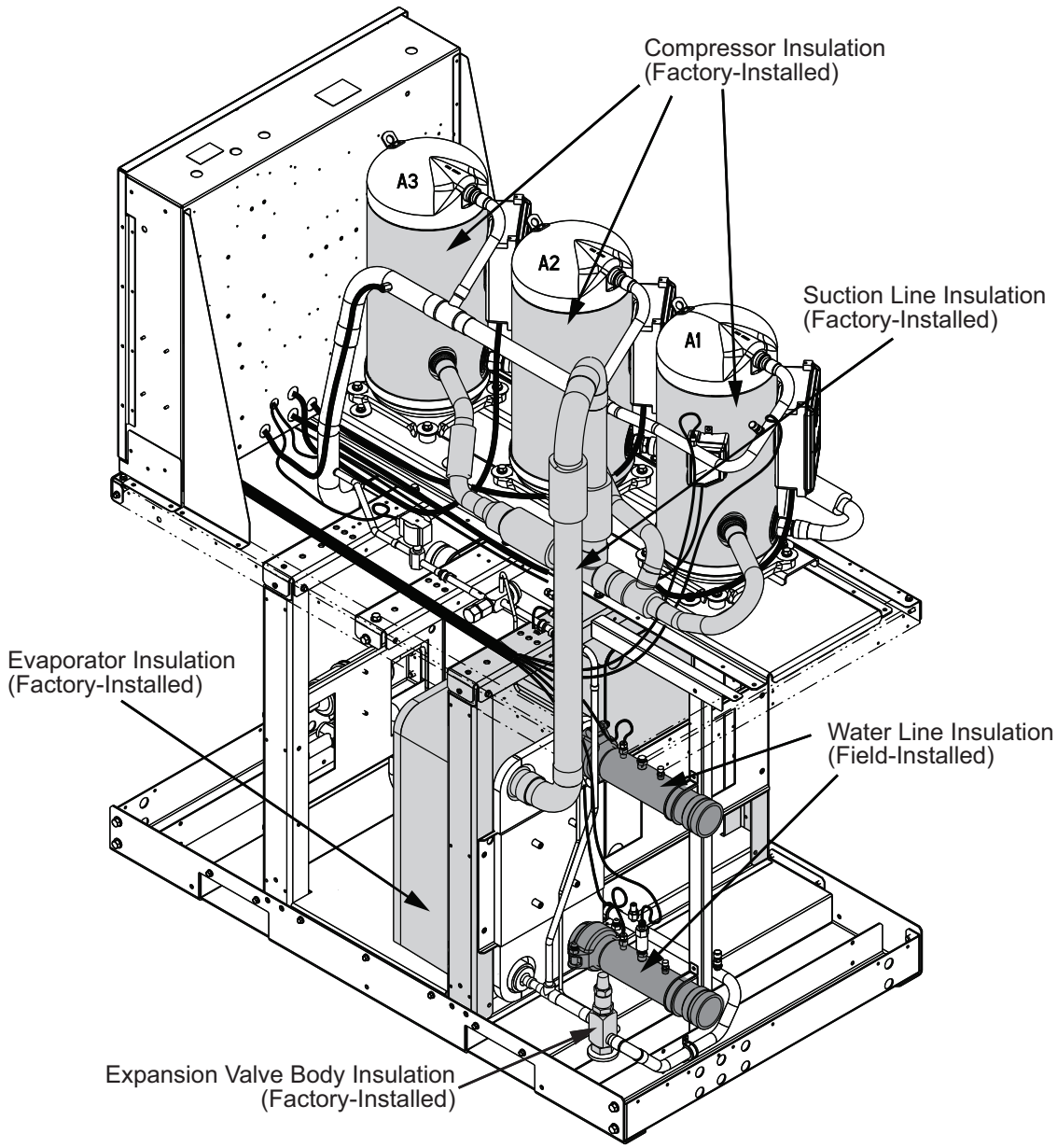
Condensation vs Relative Humidity[a]

AMOUNT OF CONDENSATION	ROOM DRY-BULB TEMP		
	80°F (27°C)	90°F (32°C)	100°F (38°C)
	% Relative Humidity		
None	80	76	70
Slight	87	84	77
Extensive	94	91	84

NOTE(S):

a. These approximate figures are based on 35°F (1.7°C) saturated suction temperature. A 2°F (1.1°C) change in saturated suction temperature changes the relative humidity values by 1% in the same direction.

30MP Insulation Area



NOTE: 30MP046 shown.

Selection procedure

Carrier's NG packaged selection program provides quick, easy selection of Carrier's liquid-cooled chillers. The program considers specific temperature, fluid and flow requirements among other factors such as fouling and altitude corrections. Before selecting a chiller, consider the following points:

Leaving water (fluid) temperature (LWT):

- The LWT must be at least 40°F (4.4°C) or greater for fresh water applications.
- If the LWT requirement is greater than 60°F (15.5°C), a mixing loop is required.

Entering water (fluid) temperature (EWT):

- If the EWT requirement is greater than 70°F (21.1°C), a mixing loop is required. The EWT should not exceed 75°F (23.9°C) for extended operation. Pull-down can be accomplished from 95°F (35°C).

Evaporator flow rate or evaporator delta-T:

- The evaporator delta-T (EWT – LWT) must fall between 5 and 20°F (2.8 and 11.1°C) while still meeting the maximum entering requirements.

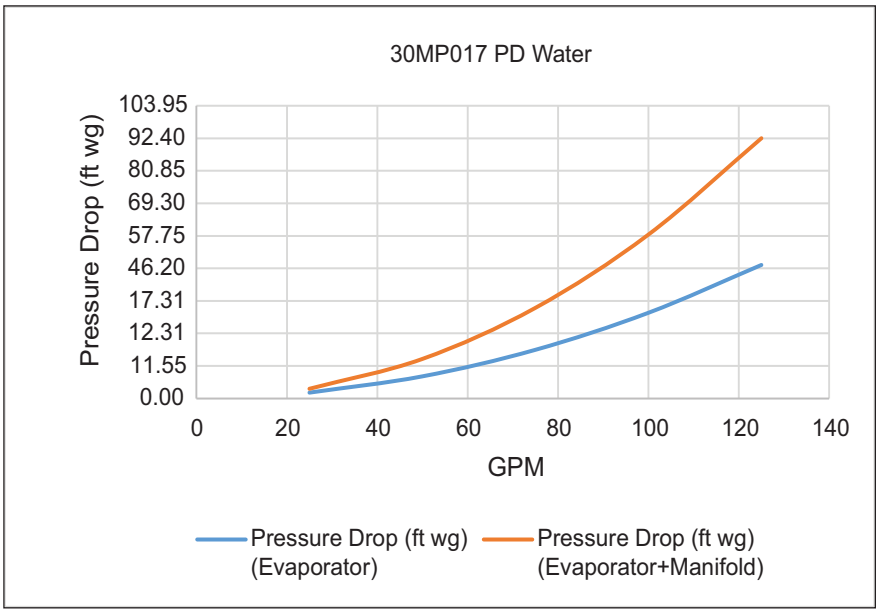
Water quality, fouling factor:

- Poor water quality can increase the evaporator fouling factor.
- Higher than standard fouling factors lead to lower capacity and higher input kW from a given chiller size compared to running the same application with better water quality (and lower fouling factors).

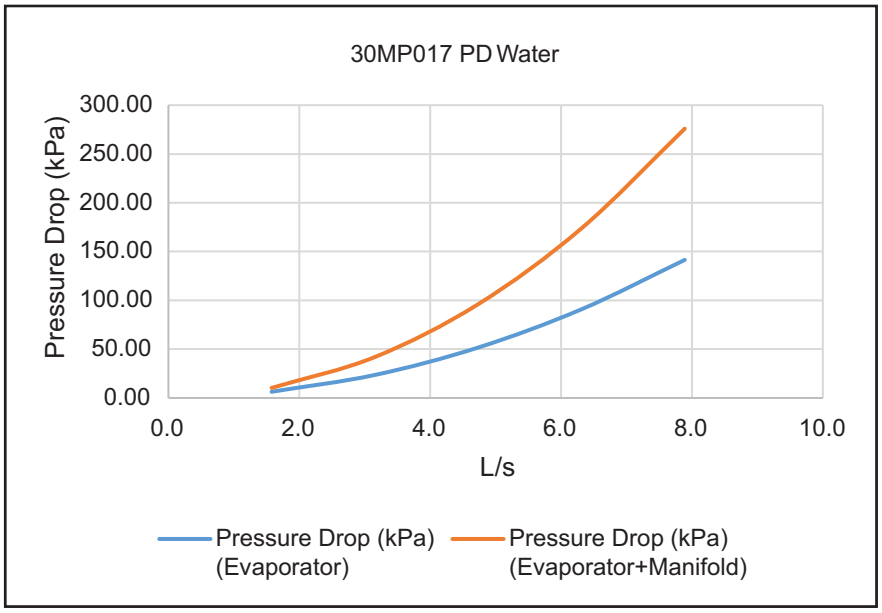
Performance data

Evaporator and Condenser Pressure Drop Curves

Evaporator Water Pressure Drop Curve — English



Evaporator Water Pressure Drop Curve — SI

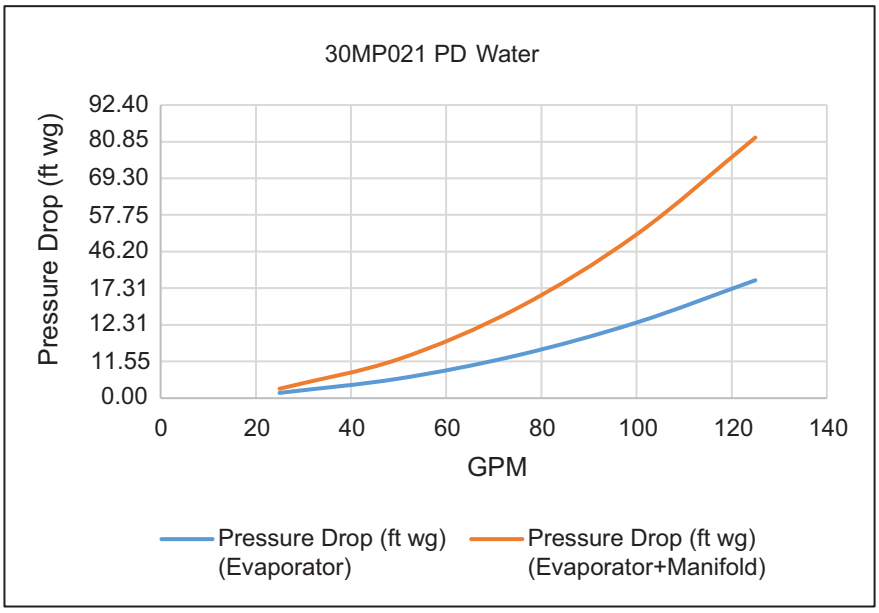


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

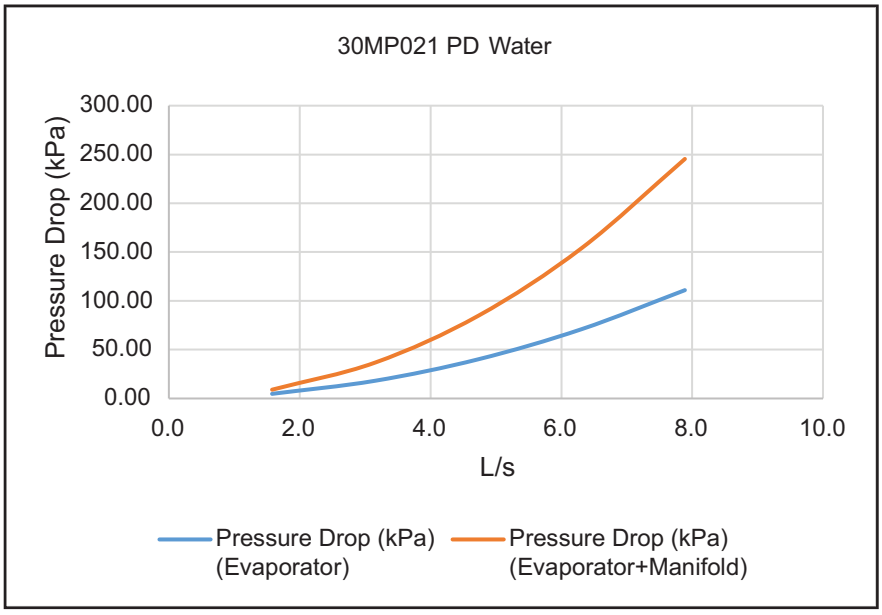
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Evaporator Water Pressure Drop Curve — English



Evaporator Water Pressure Drop Curve — SI

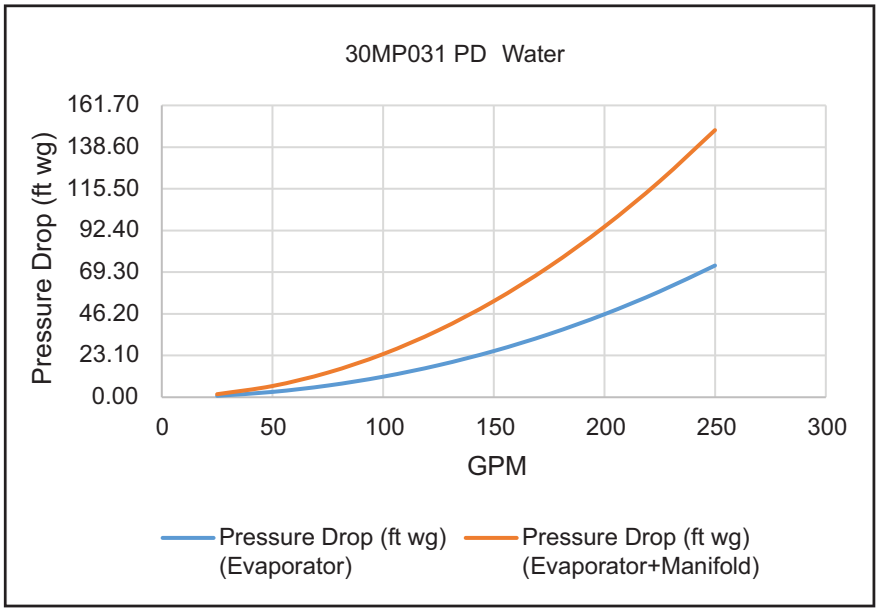


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

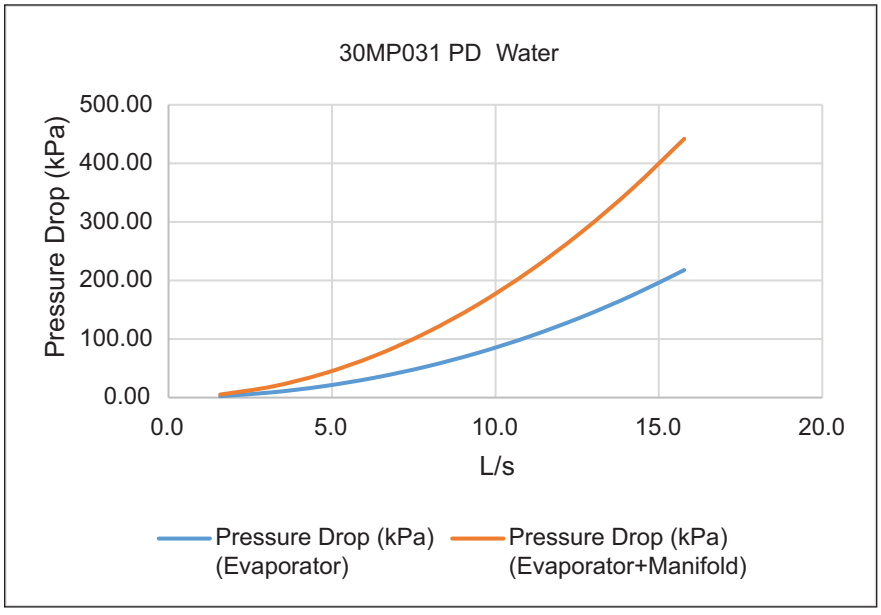
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Evaporator Water Pressure Drop Curve — English



Evaporator Water Pressure Drop Curve — SI

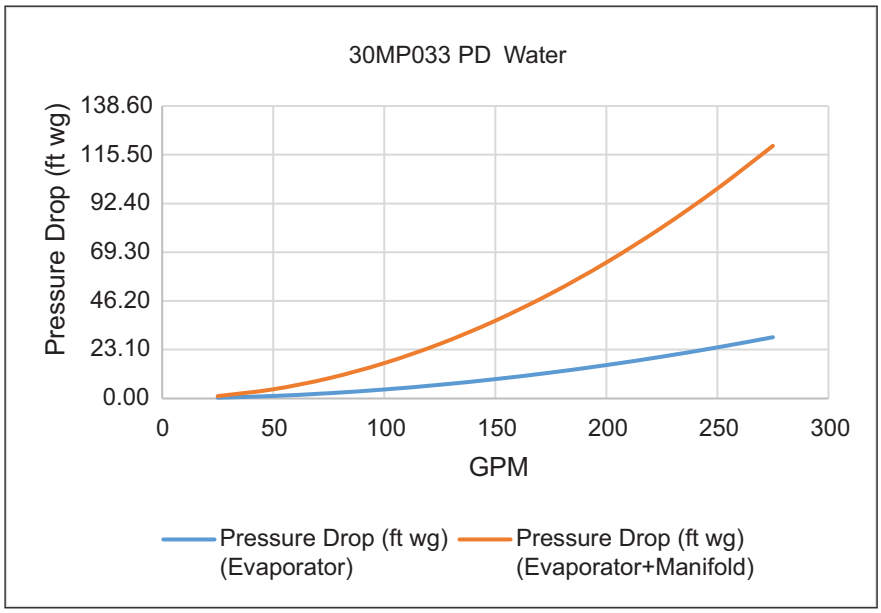


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

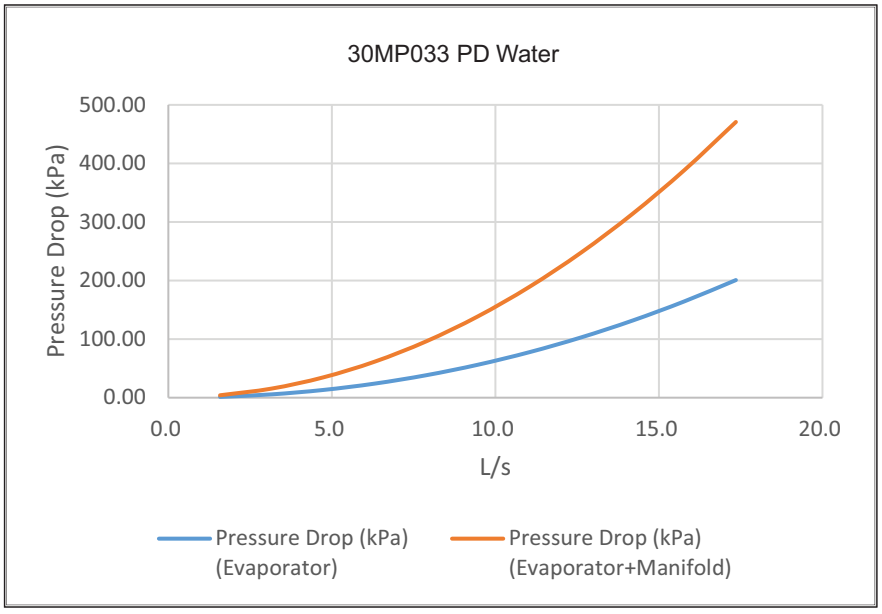
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Evaporator Pressure Drop Curve, Unit Size MPW 033 Only — English



Evaporator Water Pressure Drop Curve, Unit Size 033 Only — SI

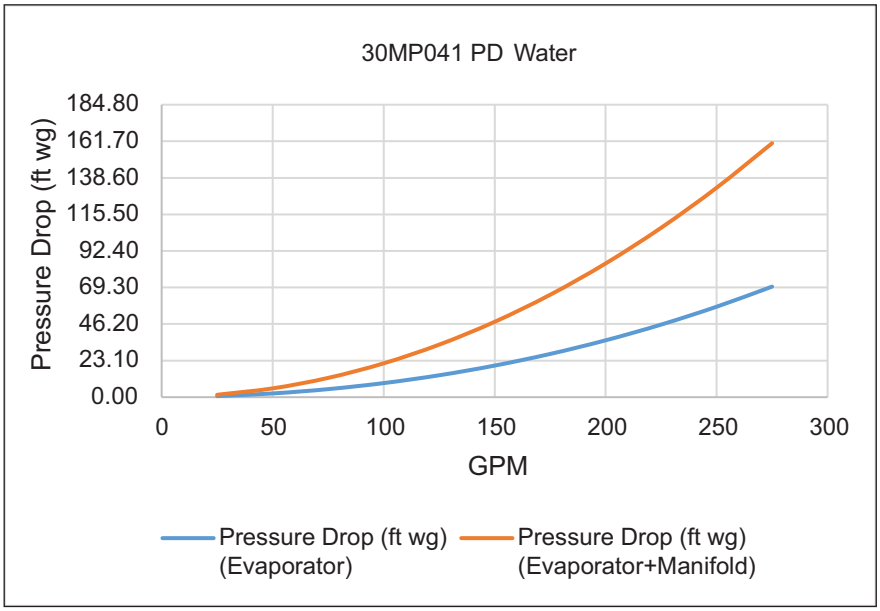


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

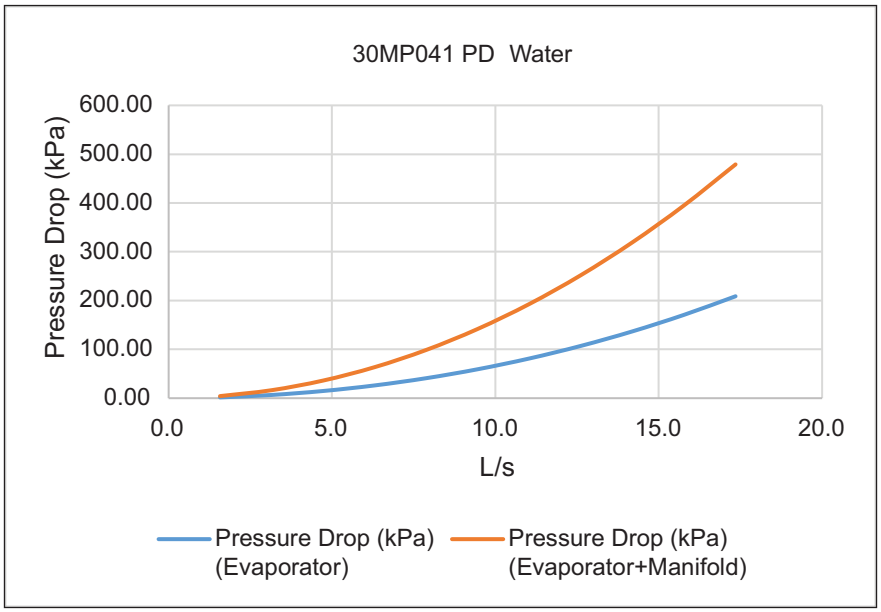
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Evaporator Water Pressure Drop Curve — English



Evaporator Water Pressure Drop Curve — SI

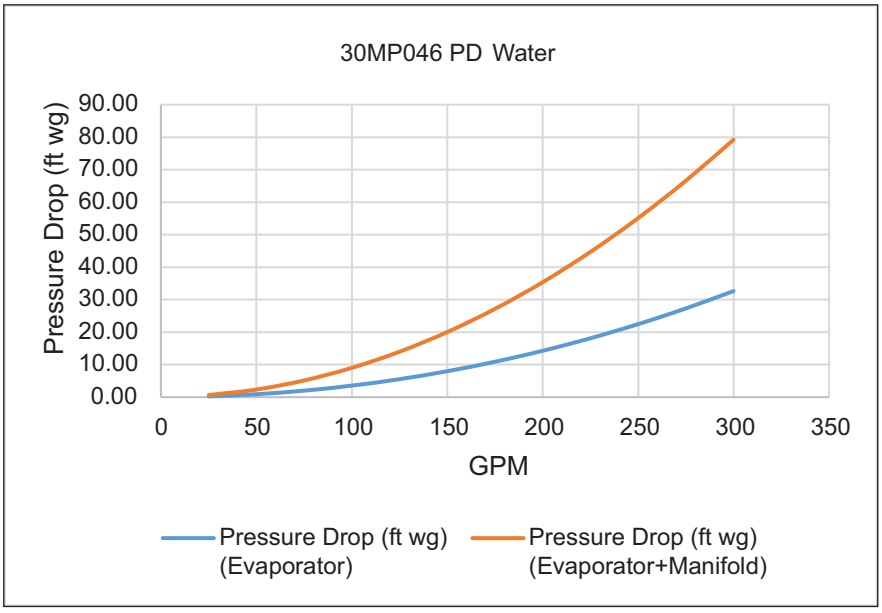


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

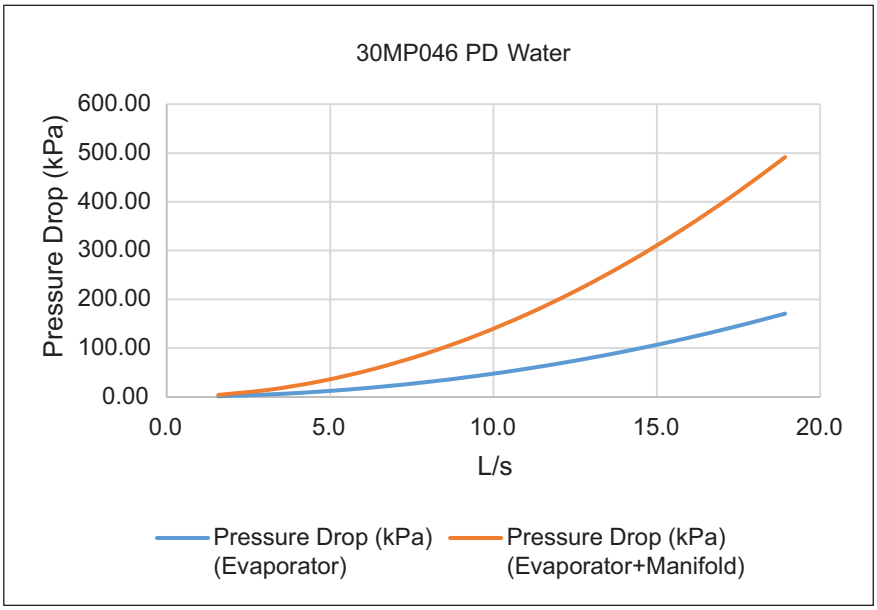
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Evaporator Water Pressure Drop Curve — English



Evaporator Water Pressure Drop Curve — SI

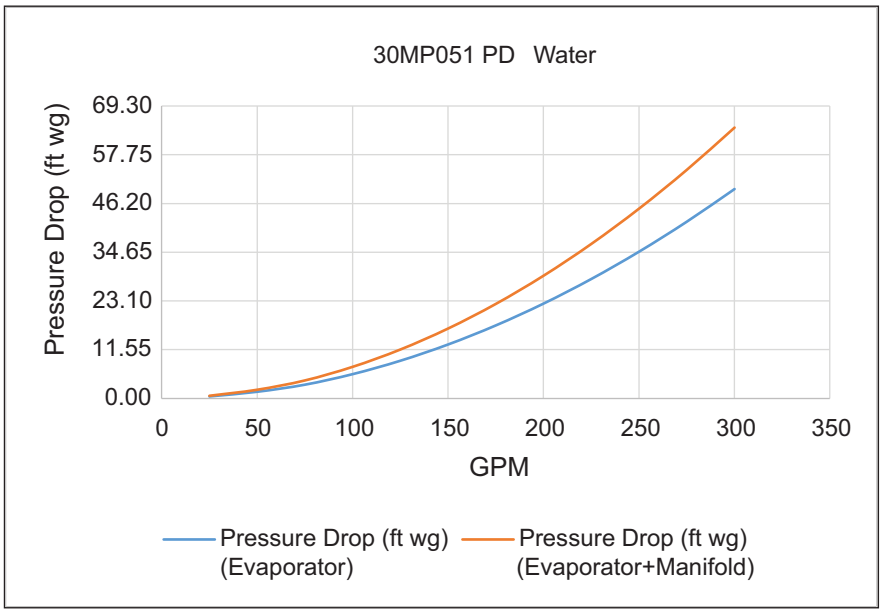


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

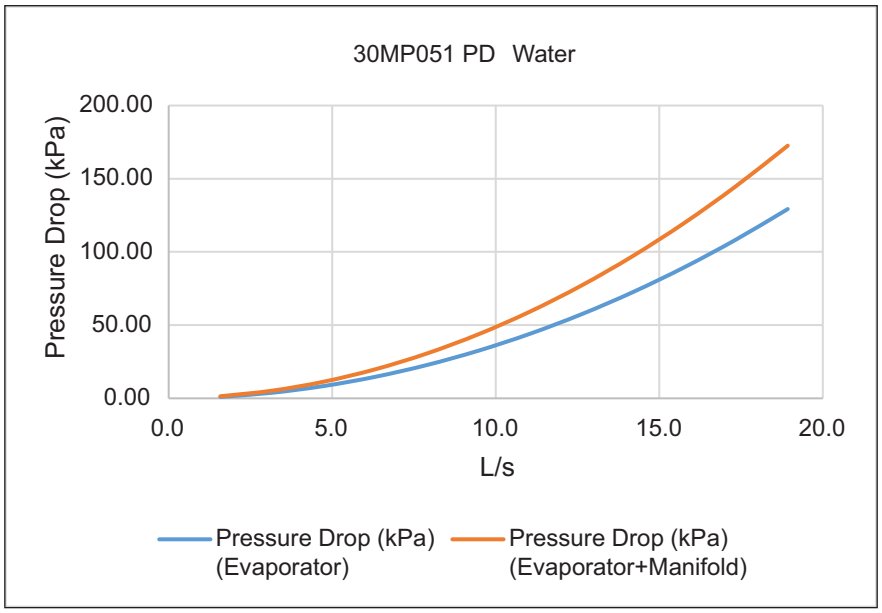
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Evaporator Water Pressure Drop Curve — English



Evaporator Water Pressure Drop Curve — SI

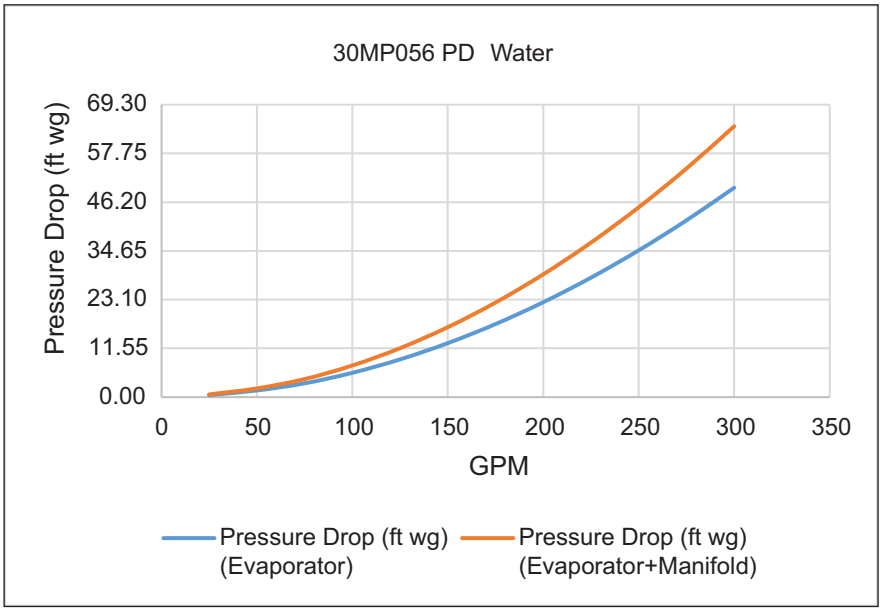


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

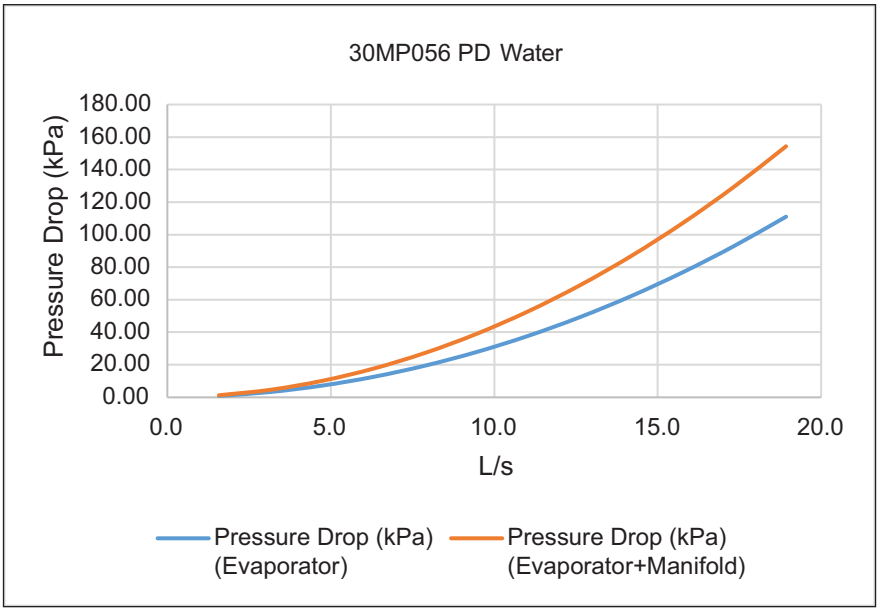
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Evaporator Water Pressure Drop Curve — English



Evaporator Water Pressure Drop Curve — SI

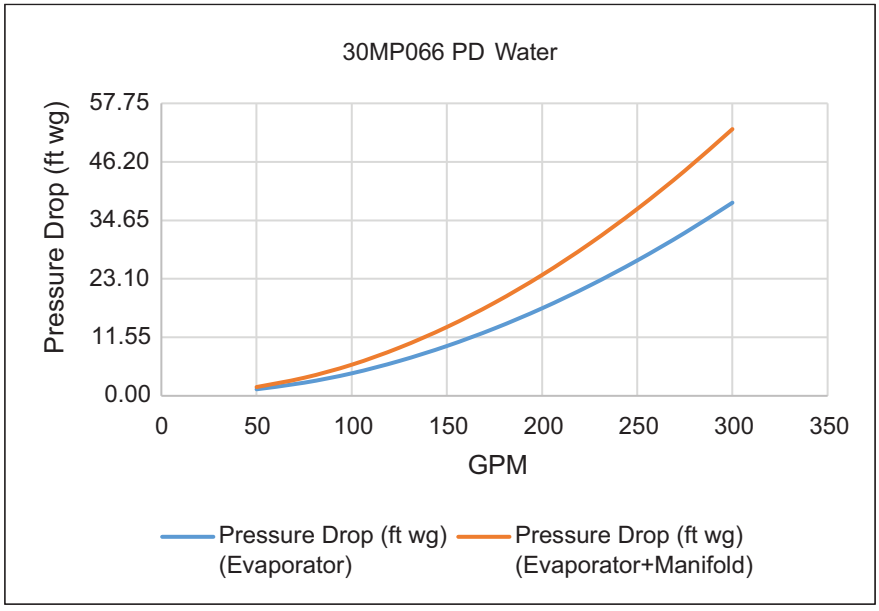


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

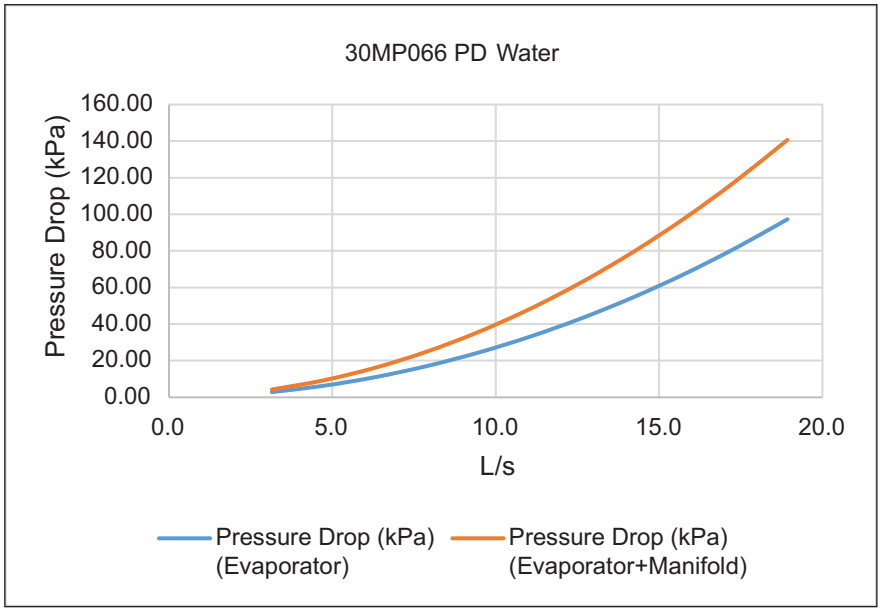
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Evaporator Water Pressure Drop Curve — English



Evaporator Water Pressure Drop Curve — SI

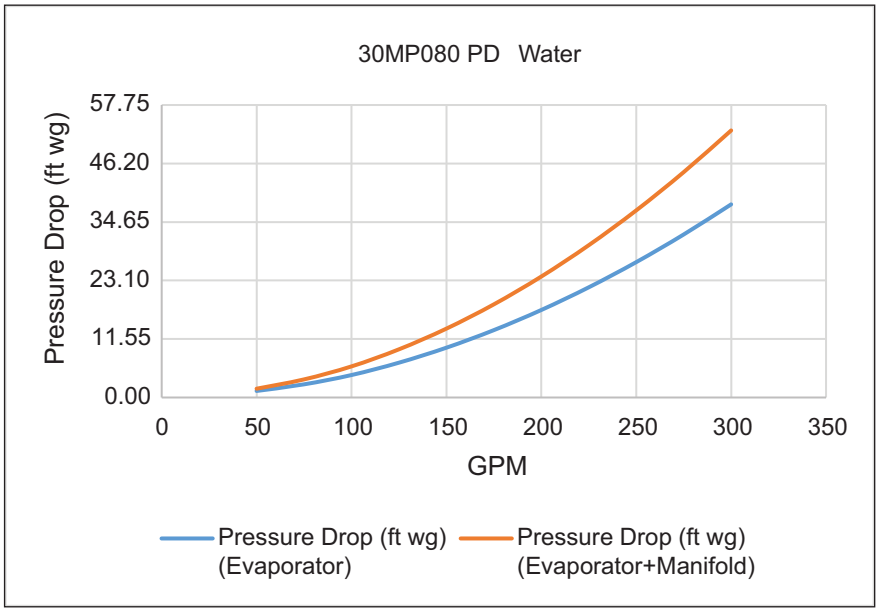


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

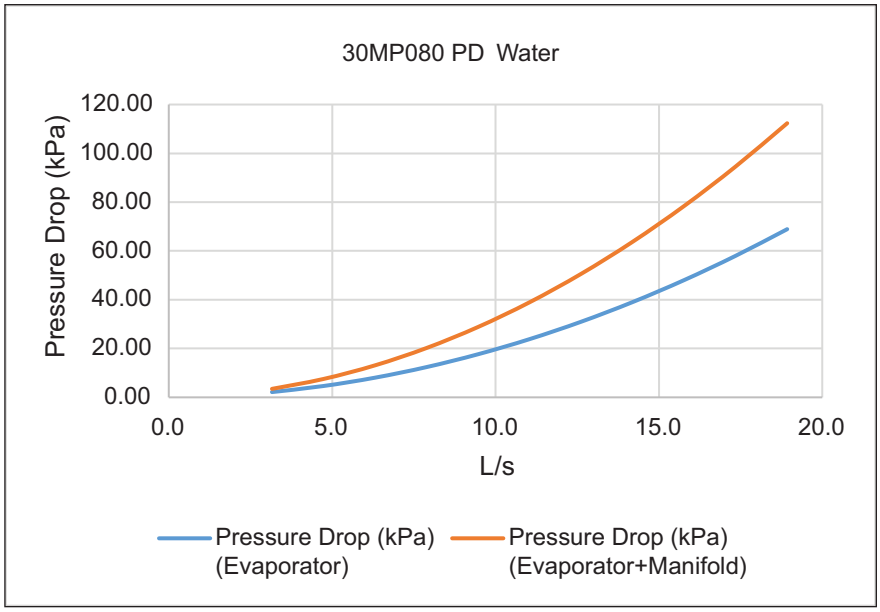
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Evaporator Water Pressure Drop Curve — English



Evaporator Water Pressure Drop Curve — SI

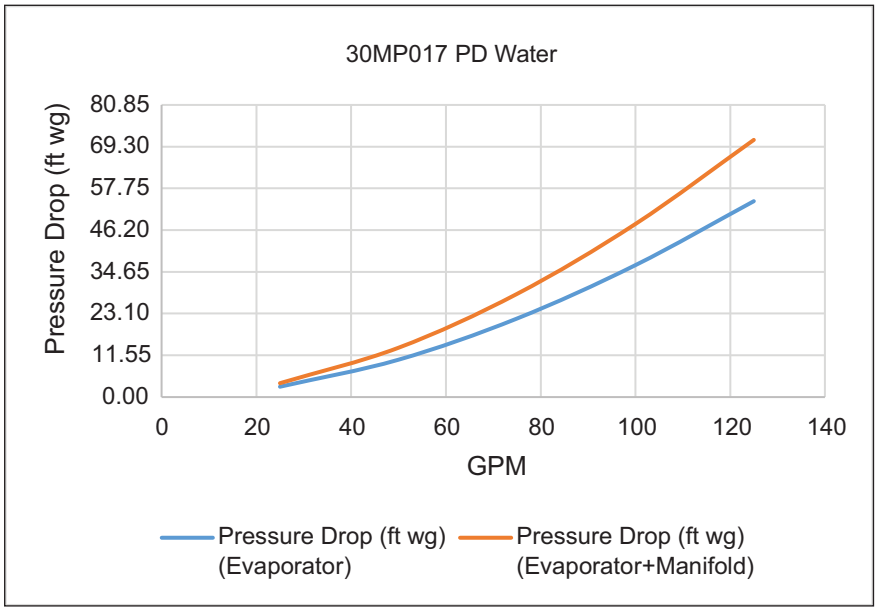


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

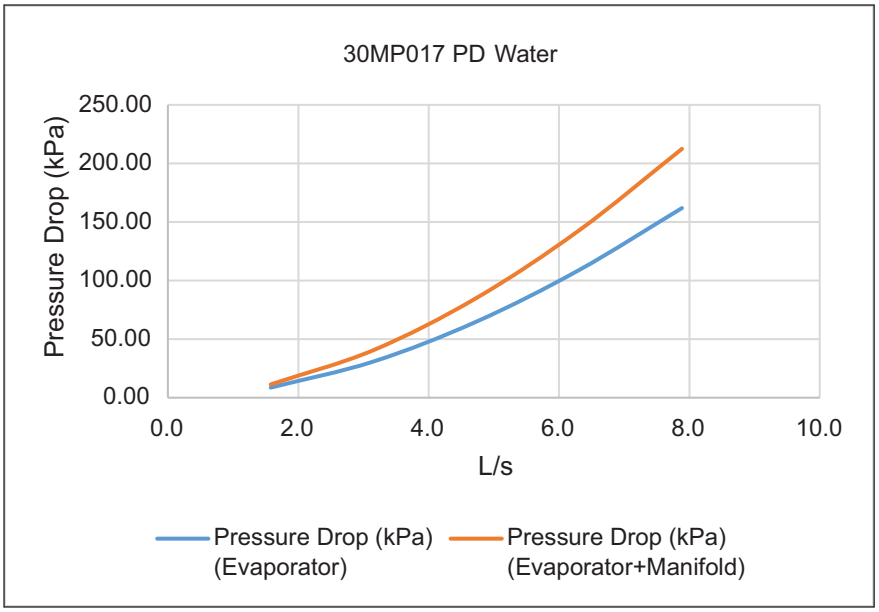
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve — English



Condenser Water Pressure Drop Curve — SI

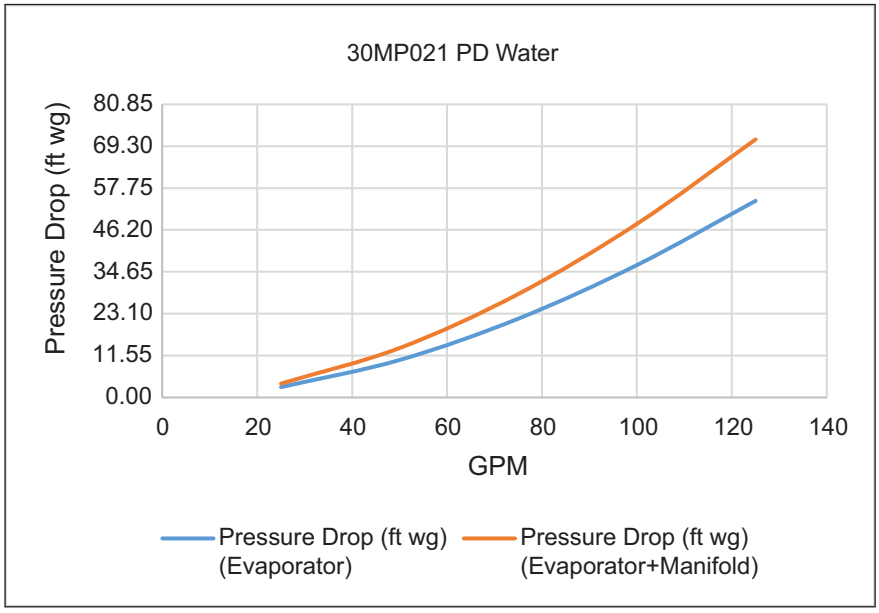


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

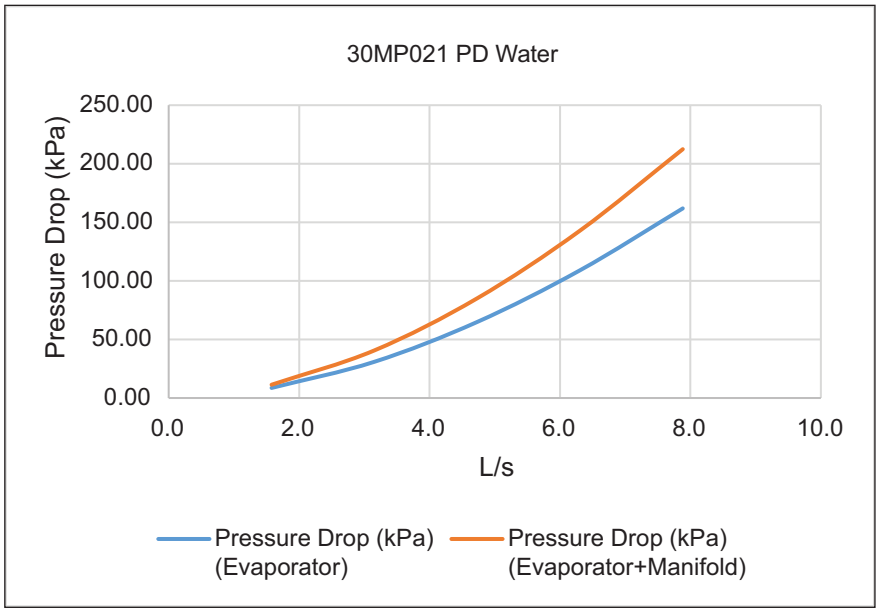
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve — English



Condenser Water Pressure Drop Curve — SI

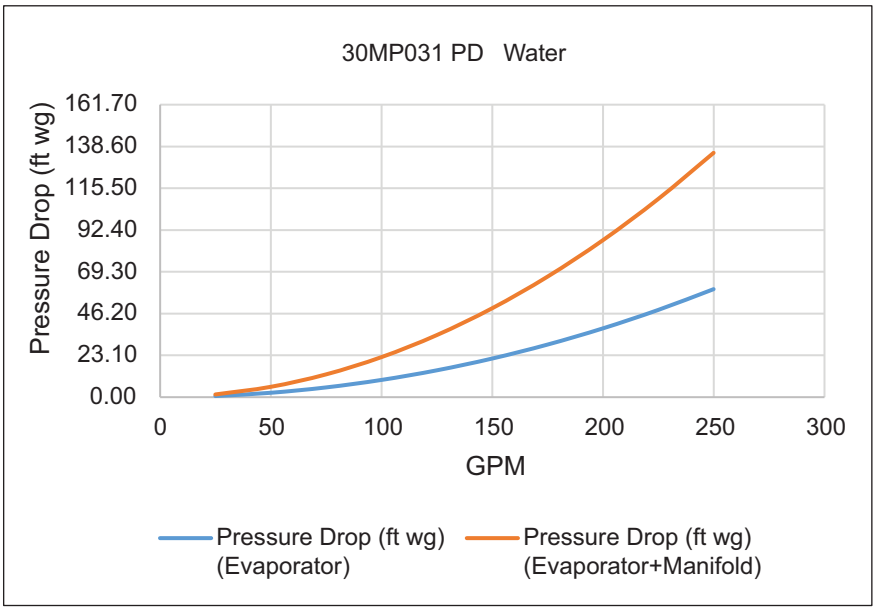


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

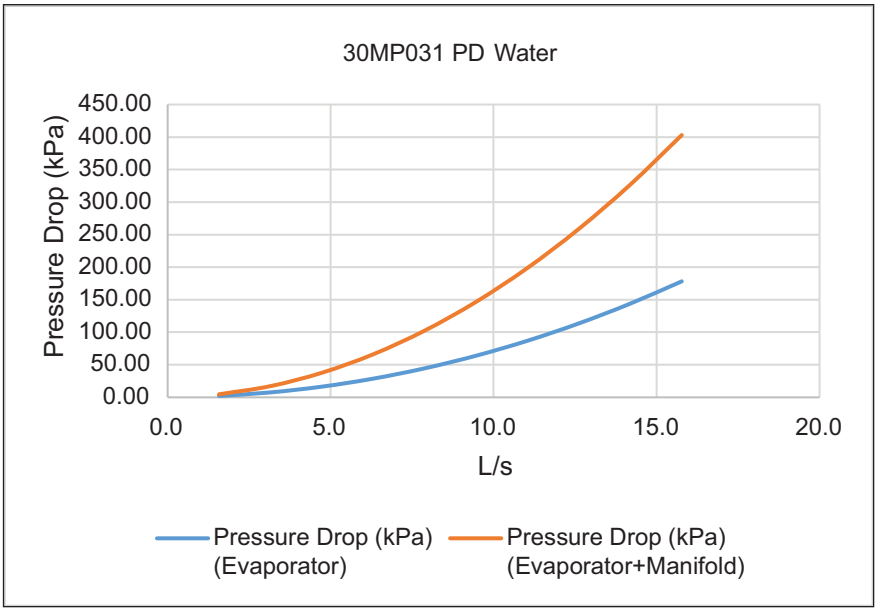
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve — English



Condenser Water Pressure Drop Curve — SI

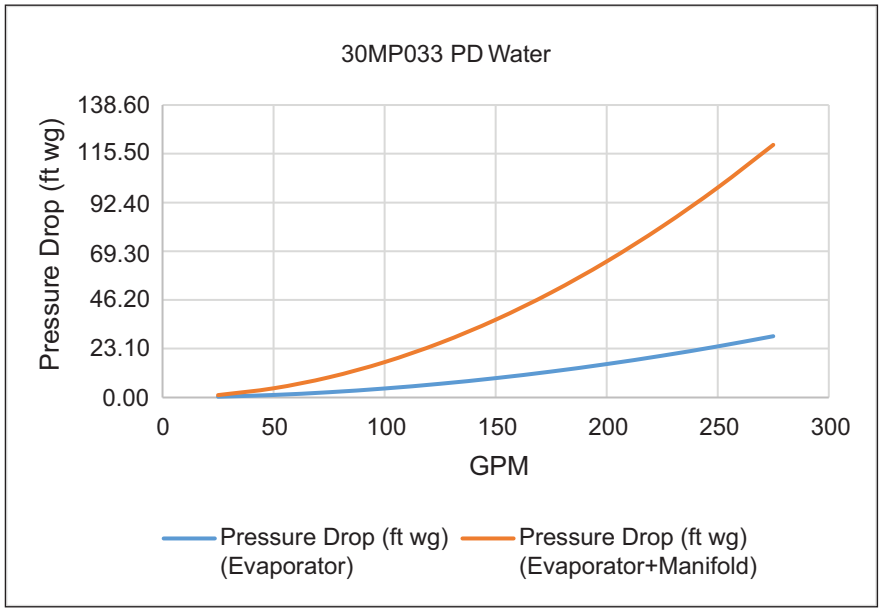


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

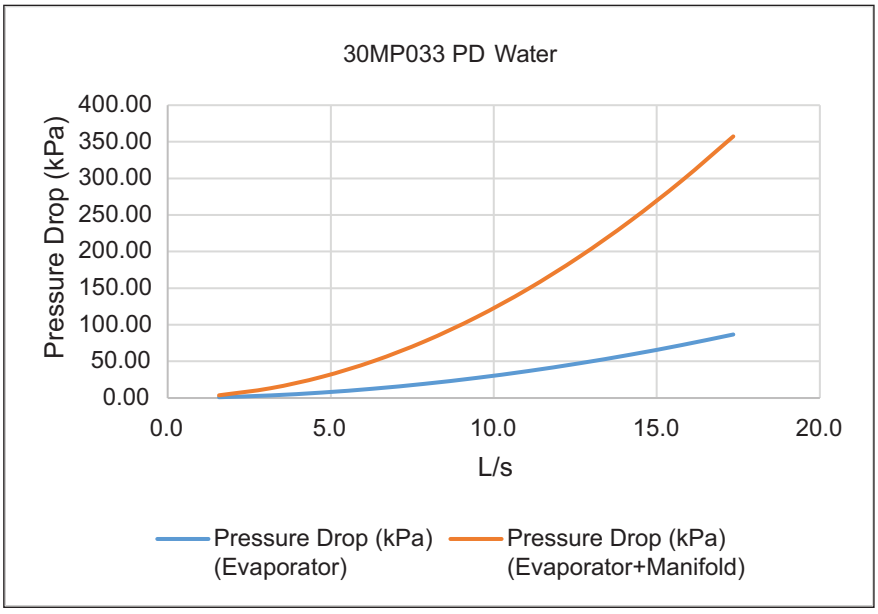
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve, Unit Size MPW 033 Only — English



Condenser Water Pressure Drop Curve, Unit Size MPW 033 Only — SI

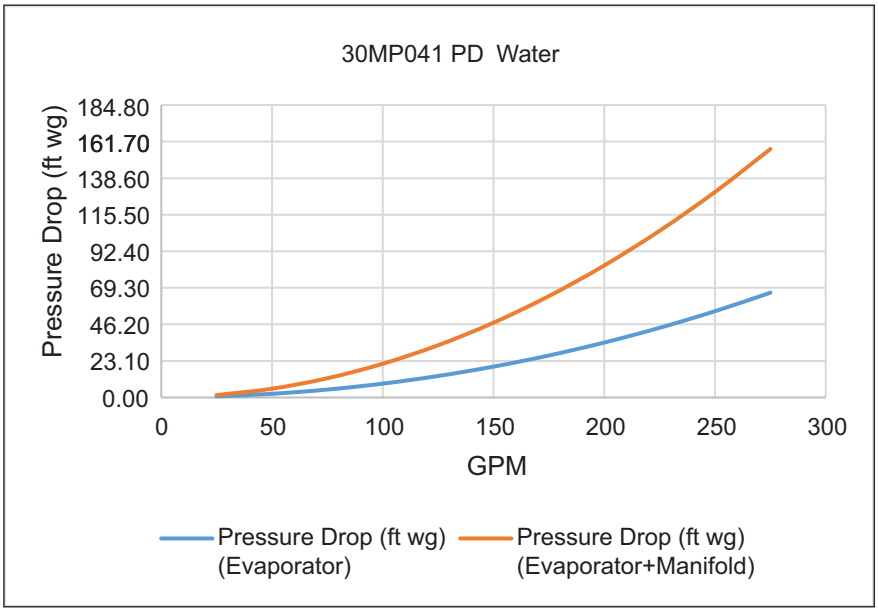


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

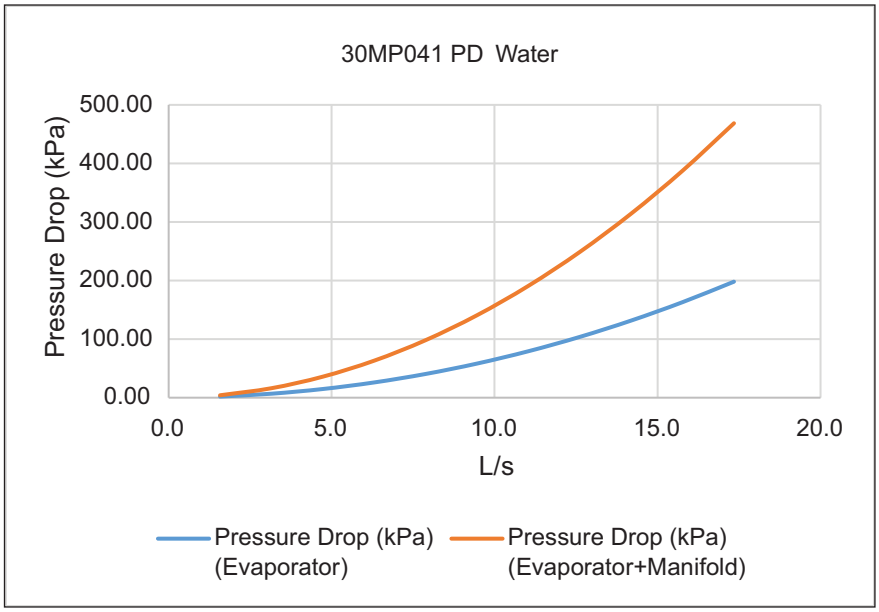
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve — English



Condenser Water Pressure Drop Curve — SI

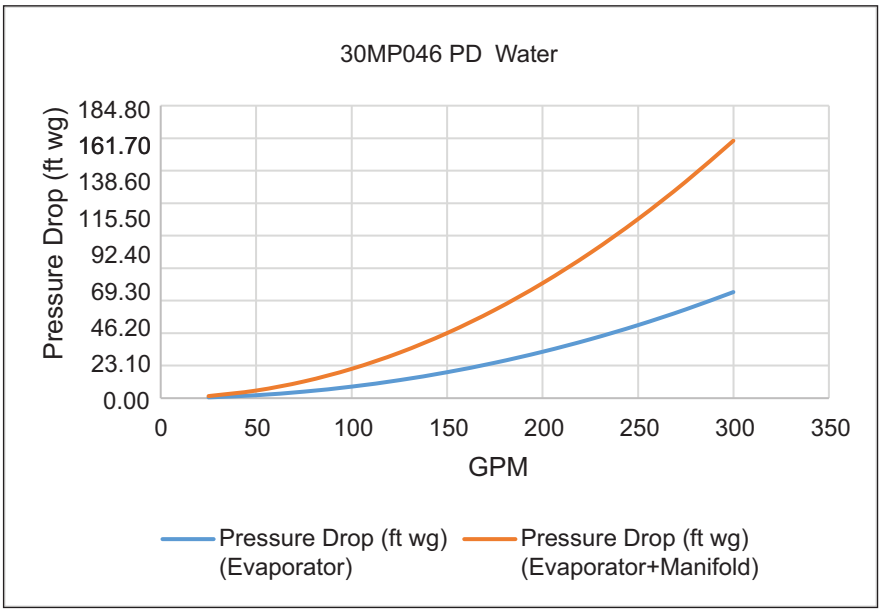


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

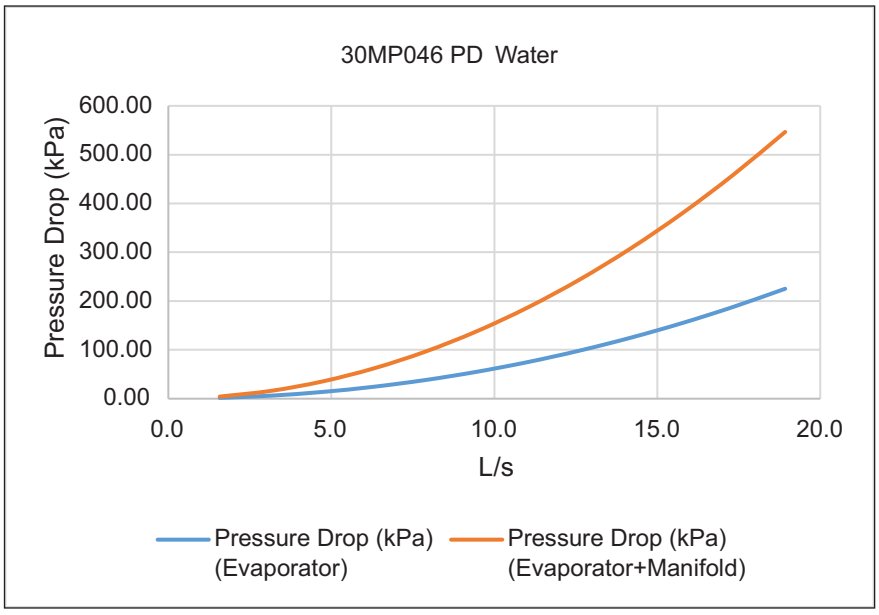
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve — English



Condenser Water Pressure Drop Curve — SI

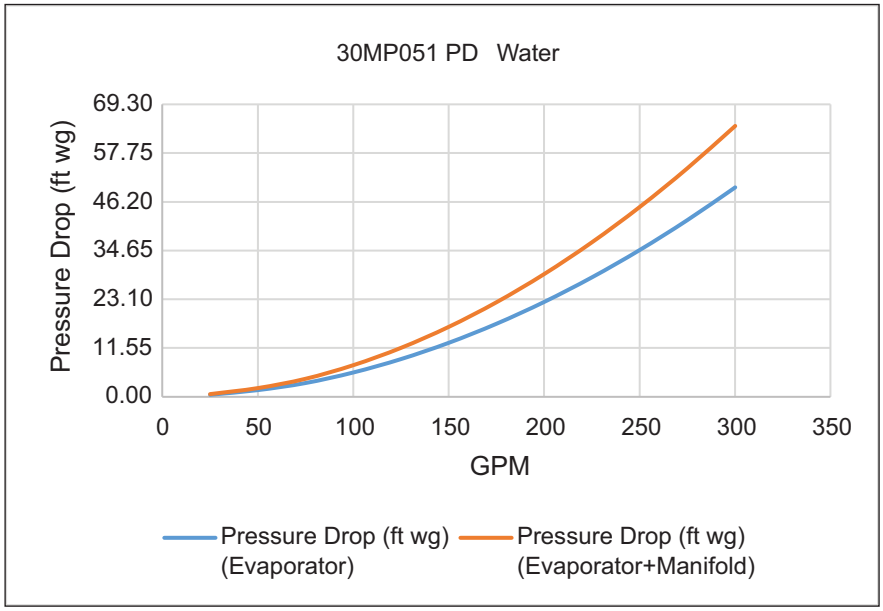


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

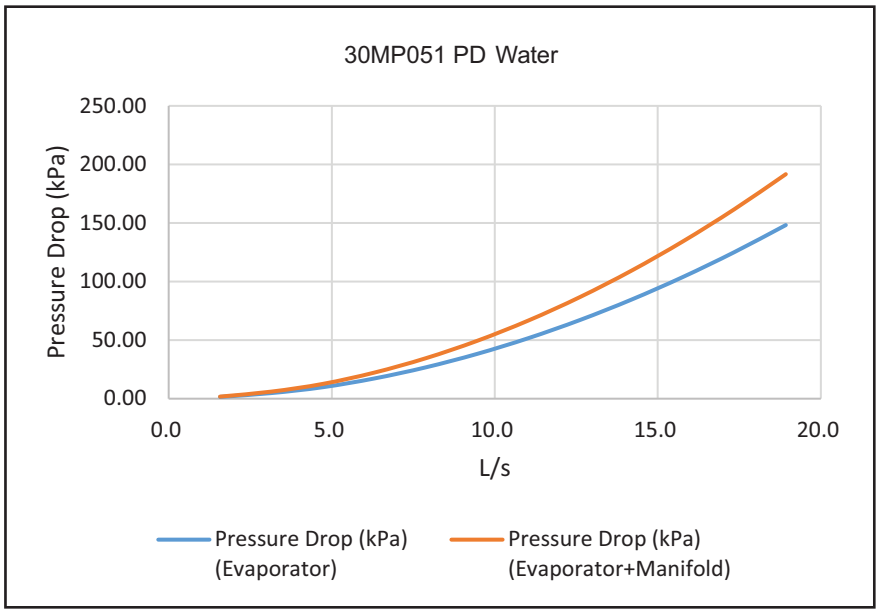
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve — English



Condenser Water Pressure Drop Curve — SI

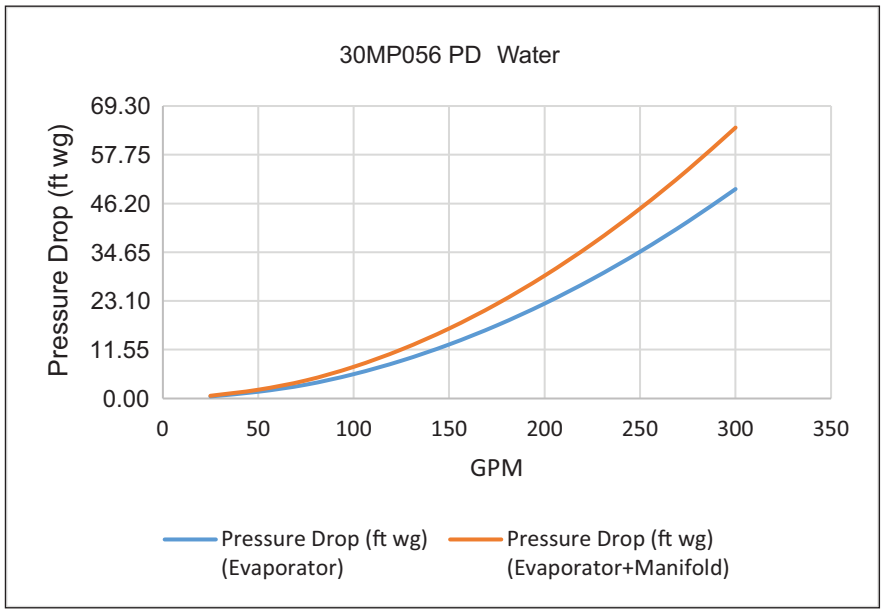


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

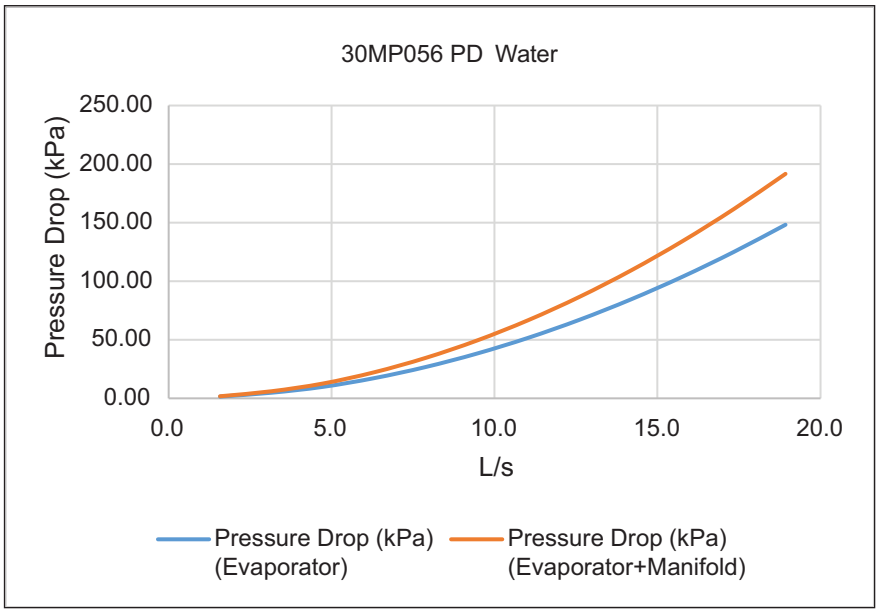
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve — English



Condenser Water Pressure Drop Curve — SI

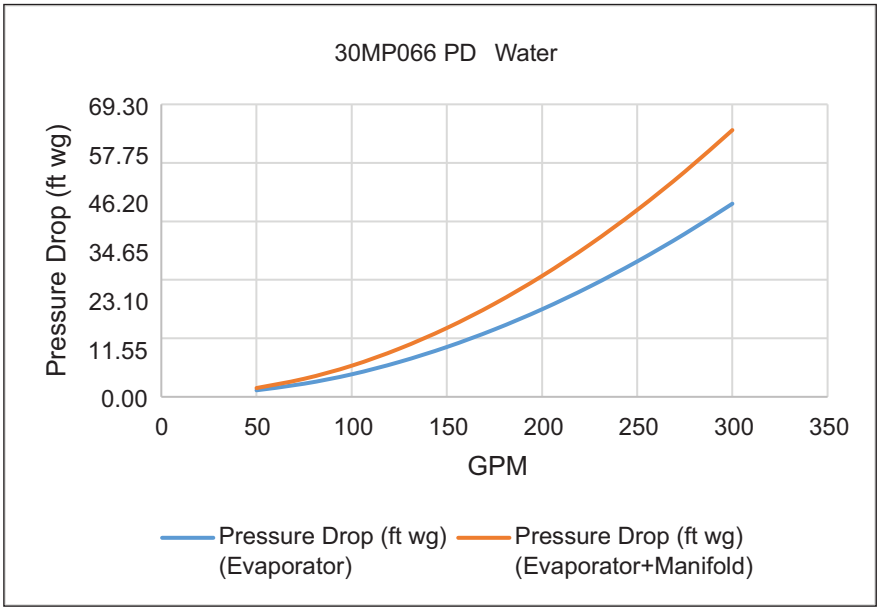


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

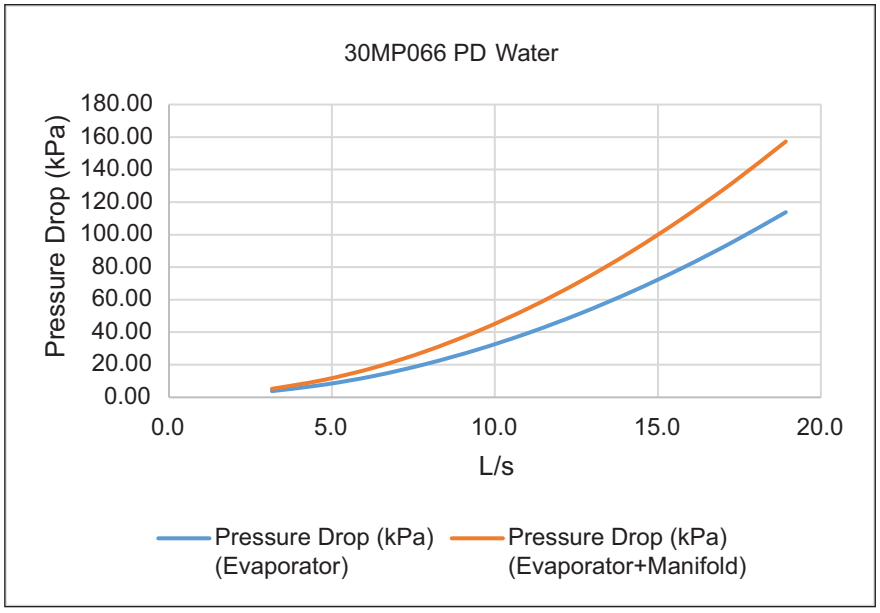
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve — English



Condenser Water Pressure Drop Curve — SI

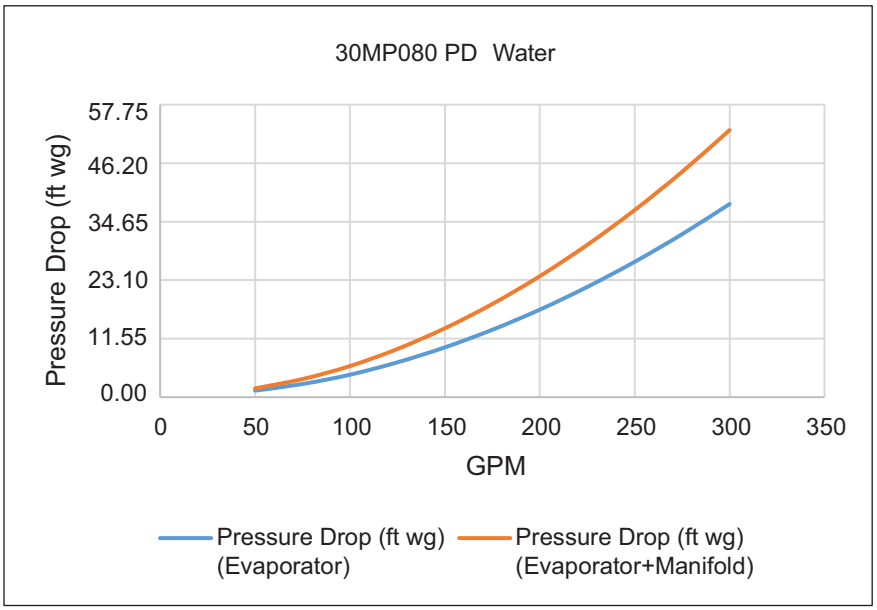


NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

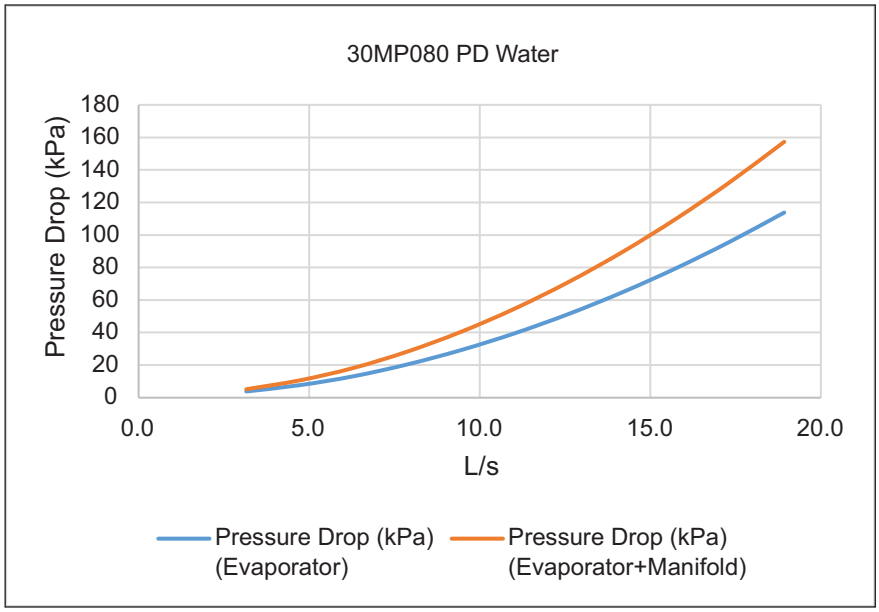
Performance data (cont)

Evaporator and Condenser Pressure Drop Curves (cont)

Condenser Water Pressure Drop Curve — English



Condenser Water Pressure Drop Curve — SI



NOTE: Pressure drop curves assume water temperature of 68°F (20°C).

Electrical data

Electrical Data — 30MP Single Point Power R-32, Standard

30MP UNIT SIZE	UNIT VOLTAGE	UNIT			
	Voltage (v-Ph)	MCA	MOCP	ICF	REC FUSE SIZE
017	208/230	48.2	70	282	60
	380	35.6	50	185	45
	460	24.1	35	139	30
	575	20.8	30	101	25
021	208/230	75.4	100	299	90
	380	41.5	50	191	50
	460	35.2	50	156	40
	575	26.3	35	119	30
031	208/230	115.5	150	415	150
	380	66.3	90	255	80
	460	54.8	70	206	70
	575	43.8	60	165	50
033	208/230	94.5	125	406	110
	380	66.3	90	255	80
	460	47.3	60	203	60
	575	43.8	60	165	50
041	208/230	157.3	200	432	175
	380	82.3	100	220	90
	460	68.5	80	183	80
	575	54.8	70	147	60
046	208/230	166.9	200	467	200
	380	95.8	125	285	110
	460	79.2	100	231	90
	575	63.3	80	185	70
051	208/230	177.3	250	653	200
	380	92.3	125	358	110
	460	83.7	110	300	100
	575	66.4	90	242	80
056	208/230	170.1	225	650	200
	380	104.0	150	363	125
	460	90.9	125	303	110
	575	69.3	100	243	80
066	208/230	235.1	350	900	300
	380	131.1	175	525	150
	460	125.3	175	429	150
	575	90.9	125	334	110
080	208/230	287.1	400	952	350
	380	152.8	200	547	175
	460	152.8	200	457	175
	575	108.2	150	351	125

LEGEND

ICF —Maximum instantaneous current flow during starting.
MCA —Minimum Circuit Amps (for wire sizing). Complies with NEC, Section 430-24.
MOCP —Maximum Overcurrent Protection
REC FUSE —Recommended dual element fuse amps (150% of compressor RLA). Size up to the next standard fuse size.

Intertek

Electrical data (cont)

Electrical Data — 30MP Single Point Power R-32, Digital Option

30MP UNIT SIZE	UNIT VOLTAGE				UNIT			
	Voltage (v-Ph)	Hz	SUPPLIED		MCA	MOCP	ICF	REC FUSE SIZE
			Min.	Max.				
017	208/230	60	187	253	48.2	70	257	60
	380	60	342	418	33.6	50	147	40
	460	60	414	506	24.1	35	139	30
	575	60	518	633	20.6	30	101	25
021	208/230	60	187	253	73.6	100	297	90
	380	60	342	418	42.2	60	191	50
	460	60	414	506	36.0	50	156	45
	575	60	518	633	27.2	35	119	35
031	208/230	60	187	253	123.1	175	415	150
	380	60	342	418	65.1	90	254	80
	460	60	414	506	55.5	80	206	70
	575	60	518	633	47.5	60	165	60
033	208/230	60	187	253	106.2	150	406	125
	380	60	342	418	65.1	90	254	80
	460	60	414	506	51.4	70	203	60
	575	60	518	633	47.5	60	165	60
041	208/230	60	187	253	155.0	200	430	175
	380	60	342	418	83.1	100	220	90
	460	60	414	506	70.6	90	192	80
	575	60	518	633	56.6	70	147	70
046	208/230	60	187	253	174.4	225	467	200
	380	60	342	418	94.6	110	284	110
	460	60	414	506	79.9	100	231	90
	575	60	518	633	67.0	80	185	80
051	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
056	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
066	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
080	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—

LEGEND

ICF —Maximum instantaneous current flow during starting.
MCA —Minimum Circuit Amps (for wire sizing). Complies with NEC, Section 430-24.
MOCP —Maximum Overcurrent Protection
REC FUSE —Recommended dual element fuse amps (150% of compressor RLA). Size up to the next standard fuse size.

Intertek

Electrical data (cont)

30MP Compressor Electrical Data for R-32 Units, Standard

30MP UNIT SIZE	V(3 Ph)	Hz	COMPRESSORS											
			A1			A2			A3			B1		
			Ton	RLA	LRA	Ton	RLA	LRA	Ton	RLA	LRA	Ton	RLA	LRA
017	208/230	60	9	25	265	6	17	166	—	—	—	—	—	—
	380	60	9	19	173	6	12	94	—	—	—	—	—	—
	460	60	9	12	130	6	9	75	—	—	—	—	—	—
	575	60	9	11	94	6	7	54	—	—	—	—	—	—
021	208/230	60	10	34	265	10	34	265	—	—	—	—	—	—
	380	60	10	18	173	10	18	173	—	—	—	—	—	—
	460	60	10	16	140	10	16	140	—	—	—	—	—	—
	575	60	10	12	108	10	12	108	—	—	—	—	—	—
031	208/230	60	15	51	364	15	51	364	—	—	—	—	—	—
	380	60	15	29	226	15	29	226	—	—	—	—	—	—
	460	60	15	24	182	15	24	182	—	—	—	—	—	—
	575	60	15	19	146	15	19	146	—	—	—	—	—	—
033	208/230	60	15	42	364	—	—	—	—	—	—	15	42	364
	380	60	15	29	226	—	—	—	—	—	—	15	29	226
	460	60	15	21	182	—	—	—	—	—	—	15	21	182
	575	60	15	19	146	—	—	—	—	—	—	15	19	146
041	208/230	60	13	48	336	13	48	336	13	48	336	—	—	—
	380	60	13	25	169	13	25	169	13	25	169	—	—	—
	460	60	13	21	141	13	21	141	13	21	141	—	—	—
	575	60	13	17	113	13	17	113	13	17	113	—	—	—
046	208/230	60	15	51	364	15	51	364	15	51	364	—	—	—
	380	60	15	29	226	15	29	226	15	29	226	—	—	—
	460	60	15	24	182	15	24	182	15	24	182	—	—	—
	575	60	15	19	146	15	19	146	15	19	146	—	—	—
051	208/230	60	25	79	574	25	79	574	—	—	—	—	—	—
	380	60	25	41	317	25	41	317	—	—	—	—	—	—
	460	60	25	37	263	25	37	263	—	—	—	—	—	—
	575	60	25	30	212	25	30	212	—	—	—	—	—	—
056	208/230	60	27	76	574	27	76	574	—	—	—	—	—	—
	380	60	27	46	317	27	46	317	—	—	—	—	—	—
	460	60	27	40	263	27	40	263	—	—	—	—	—	—
	575	60	27	31	212	27	31	212	—	—	—	—	—	—
066	208/230	60	27	76	574	40	128	824	—	—	—	—	—	—
	380	60	27	46	317	40	68	479	—	—	—	—	—	—
	460	60	27	40	263	40	68	389	—	—	—	—	—	—
	575	60	27	31	212	40	48	303	—	—	—	—	—	—
080	208/230	60	40	128	824	40	128	824	—	—	—	—	—	—
	380	60	40	68	479	40	68	479	—	—	—	—	—	—
	460	60	40	68	389	40	68	389	—	—	—	—	—	—
	575	60	40	48	303	40	48	303	—	—	—	—	—	—

LEGEND

LRA —Locked Rotor Amps
RLA —Rated Load Amps

Electrical data (cont)

30MP Compressor Electrical Data for R-32 Units, Digital Option

30MP UNIT SIZE	V(3 Ph)	Hz	COMPRESSORS											
			A1			A2			A3			B1		
			Ton	RLA	LRA	Ton	RLA	LRA	Ton	RLA	LRA	Ton	RLA	LRA
017	208/230	60	9	25	240	6	17	166	—	—	—	—	—	—
	380	60	9	17	135	6	12	94	—	—	—	—	—	—
	460	60	9	12	130	6	9	75	—	—	—	—	—	—
	575	60	9	11	94	6	7	54	—	—	—	—	—	—
021	208/230	60	10	32	240	10	34	265	—	—	—	—	—	—
	380	60	10	19	152	10	18	173	—	—	—	—	—	—
	460	60	10	16	140	10	16	140	—	—	—	—	—	—
	575	60	10	12	108	10	12	108	—	—	—	—	—	—
031	208/230	60	15	57	340	15	51	364	—	—	—	—	—	—
	380	60	15	28	196	15	29	226	—	—	—	—	—	—
	460	60	15	25	173	15	24	182	—	—	—	—	—	—
	575	60	15	22	132	15	19	146	—	—	—	—	—	—
033	208/230	60	15	42	340	—	—	—	—	—	—	15	51	364
	380	60	15	28	196	—	—	—	—	—	—	15	29	226
	460	60	15	21	173	—	—	—	—	—	—	15	24	182
	575	60	15	22	132	—	—	—	—	—	—	15	19	146
041	208/230	60	13	46	300	13	48	336	13	48	336	—	—	—
	380	60	13	26	139	13	25	169	13	25	169	—	—	—
	460	60	13	23	150	13	21	141	13	21	141	—	—	—
	575	60	13	18	109	13	17	113	13	17	113	—	—	—
046	208/230	60	15	57	340	15	51	364	15	51	364	—	—	—
	380	60	15	28	196	15	29	226	15	29	226	—	—	—
	460	60	15	25	173	15	24	182	15	24	182	—	—	—
	575	60	15	22	132	15	19	146	15	19	146	—	—	—
051	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
056	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
066	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
080	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

LRA —Locked Rotor Amps
RLA —Rated Load Amps

Electrical data (cont)

30MP Compressor RLA Data for R-32 Units, Standard and Digital Option

SIZE TONS	VOLTAGE	R-32			R-32 DIGITAL		
		RLA	LRA	MCC	RLA	LRA	MCC
6	208/230	21.7	166.2	33.9	23.7	164.0	37.0
	380	12.0	93.9	18.7	11.5	73.0	17.9
	460	11.7	75.0	18.3	11.7	75.0	18.3
	575	7.2	54.0	11.2	6.9	54.0	10.7
9	208/230	32.8	265.0	45.9	29.2	240.0	45.6
	380	18.9	172.8	29.5	17.3	135.0	27.0
	460	13.7	130.0	21.4	14.0	130.0	21.9
	575	10.9	93.7	17.0	10.7	93.7	16.7
10	208/230	33.5	265.0	52.3	31.7	240.0	49.4
	380	18.5	172.8	28.8	19.0	152.0	29.6
	460	15.6	140.0	24.4	16.3	140.0	25.4
	575	11.7	107.6	18.2	12.4	107.6	19.4
11	208/230	41.0	294.0	64.0	45.3	245.0	70.6
	380	24.6	176.4	38.4	21.4	145.0	33.4
	460	20.5	147.0	32.0	19.3	125.0	30.1
	575	16.4	117.6	25.6	14.5	100.0	22.6
13	208/230	48.4	335.5	75.5	46.2	300.0	72.0
	380	25.3	169.2	39.5	26.0	139.0	40.5
	460	21.1	141.0	32.9	22.8	150.0	35.5
	575	16.9	112.8	26.3	18.3	109.0	28.6
15	208/230	51.3	364.0	80.1	57.4	340.0	89.5
	380	29.5	226.0	46.0	28.2	196.0	44.0
	460	24.4	182.0	38.0	24.9	173.0	38.9
	575	19.5	145.6	30.4	22.4	132.0	35.0
25	208/230	78.8	574.0	123.0	—	—	—
	380	41.0	317.0	64.0	—	—	—
	460	37.2	263.0	58.0	—	—	—
	575	29.5	212.0	46.0	—	—	—
27	208/230	75.6	574.0	118.0	—	—	—
	380	46.2	317.0	72.0	—	—	—
	460	40.4	263.0	63.0	—	—	—
	575	30.8	212.0	48.0	—	—	—
40	208/230	127.6	824.0	199.0	—	—	—
	380	67.9	479.0	106.0	—	—	—
	460	67.9	389.0	106.0	—	—	—
	575	48.1	303.0	75.0	—	—	—

LEGEND

LRA —Locked Rotor Amps
RLA —Rated Load Amps
MCC—Maximum Continuous Current

Electrical data (cont)

Crankcase Heaters Voltage and Wattage

UNIT VOLTAGE	Hz	CRANKCASE HEATER, watts	HEATER, amps
208	60	90	0.4
380	60	90	0.2
460	60	90	0.2
575	60	90	0.2

Crankcase Heaters Electrical Data

30MP UNIT SIZE	VOLTAGE	NUMBER OF COMPRESSORS	HEATER LOAD
017	**208/230**	0.0	0.0
	380	0.0	0.0
	460	0.0	0.0
	575	0.0	0.0
021	**208/230**	0.0	0.0
	380	0.0	0.0
	460	0.0	0.0
	575	0.0	0.0
031	**208/230**	2.0	0.8
	380	2.0	0.4
	460	2.0	0.4
	575	2.0	0.4
033	**208/230**	0.0	0.0
	380	0.0	0.0
	460	0.0	0.0
	575	0.0	0.0
041	**208/230**	3.0	1.2
	380	3.0	0.6
	460	3.0	0.6
	575	3.0	0.6
046	**208/230**	3.0	1.2
	380	3.0	0.6
	460	3.0	0.6
	575	3.0	0.6
051	**208/230**	2.0	0.8
	380	2.0	0.4
	460	2.0	0.4
	575	2.0	0.4
056	**208/230**	2.0	0.8
	380	2.0	0.4
	460	2.0	0.4
	575	2.0	0.4
066	**208/230**	2.0	0.8
	380	2.0	0.4
	460	2.0	0.4
	575	2.0	0.4
080	**208/230**	2.0	0.8
	380	2.0	0.4
	460	2.0	0.4
	575	2.0	0.4

Electrical data (cont)

R-32 Compressors

30MP UNIT SIZE	CIRCUIT A							CIRCUIT B	
	A1			A2		A3		B1	
	SIZE	MODEL	MODEL DIGITAL (A1 Only)	SIZE	MODEL	SIZE	MODEL	SIZE	MODEL
017	9	YP104K	YPD110K	6	YP72K	—	—	—	—
021	10	YP122K	YPD129K	10	YP122K	—	—	—	—
031	15	YP182K	YPD192K	15	YP182K	—	—	—	—
033	15	YP182K	YPD192K	—	—	—	—	15	YP182K
041	13	YP154K	YPD163K	13	YP154K	13	YP154K	—	—
046	15	YP182K	YPD192K	15	YP182K	15	YP182K	—	—
051	25	DFS295	—	25	DFS295	—	—	—	—
056	27	DFS325	—	27	DFS325	—	—	—	—
066	27	DFS325	—	40	DFS485	—	—	—	—
080	40	DFS485	—	40	DFS485	—	—	—	—

Compressor Model Number Reference

SIZE, TONS	EMERSON MODEL NUMBER Non Digital
6	YP72K
9	YP104K
10	YP122K
11	YP137K
13	YP154K
15	YP182K

SIZE, TONS	DANFOSS MODEL NUMBER
25	DFS295
27	DFS325
40	DFS485

SIZE, TONS	EMERSON MODEL NUMBER Digital
6	YPD76K
9	YPD110K
10	YPD129K
11	YPD145K
13	YPD163K
15	YPD192K

Electrical data (cont)

Standard Ampere Ratings per NEC 240-6

MOCP	REC. FUSE
15	15
20	20
25	25
30	30
35	35
40	40
45	45
50	50
60	60
70	70
80	80
90	90
100	100
110	110
125	125
150	150
175	175
200	200
225	225
250	250
300	300
350	350
400	400
450	450
500	500
600	600
700	700
800	800
1000	1000
1200	1200
1600	1600
2000	2000
2500	2500
3000	3000
4000	4000
5000	5000
6000	6000

LEGEND

MOCP —Maximum Overcurrent Protection
REC FUSE —Recommended dual element fuse amps (150% of compressor RLA). Size up to the next standard fuse size.

The controls consist of 24-v control circuits. The 24-v circuit provides control power for the PIC6, all safeties, and the interlock relays.

Microprocessor

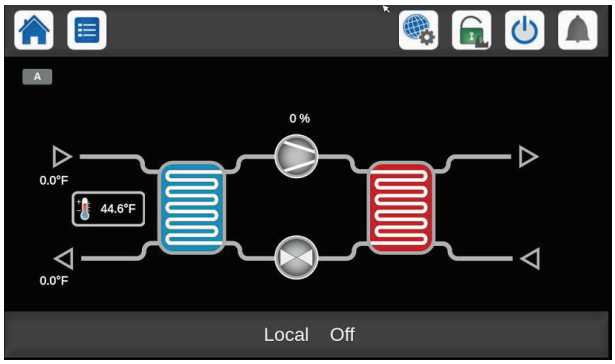
The PIC6 controls overall unit operation. Its central executive routine controls a number of processes simultaneously. These include internal timers, reading inputs, analog to digital conversions, display control, diagnostic control, output relay control, demand limit, capacity control, and temperature reset. Some processes are updated almost continuously, other processes are updated every 2 to 3 seconds, and some every 30 seconds.

The microprocessor routine is started by switching the Emergency ON-OFF switch (switch 2) to ON position.

Touch Screen display

Standard control includes a display that shows all of the PIC6 control codes (with expandable clear language), plus set points, time of day, and temperatures.

Touch Screen Display



Off cycle

For units equipped with crankcase heaters, the heaters remain energized during an off cycle and any time all of the compressors in the circuit are off.

Start-up

When the unit Enable/Off/Remote switch is set to the ENABLE position, the 24-v control circuit will be energized. When there is a call for cooling and all safety devices are satisfied, the compressor will be started after a delay.

Capacity control

The 30MP 021, 031, 033, 051, and 080 units use identical tandem compressors, and have 2 standard stages of capacity control. The 30MP 041 and 046 units use identical trio compressors, and have 3 standard stages of capacity control. The 30MP 017 and 056-066 units use uneven tandem compressors, have 3 standard stages of capacity control.

When the leaving fluid temperature rises above the set point, the control will begin to add stages of capacity by starting a compressor. The control uses a leaving-water temperature control with entering water compensation routine and will add additional stages of capacity as required to meet the required load. If the unit is equipped with hot gas bypass, the hot gas bypass solenoid and a compressor for the circuit will be energized as the first stage of capacity. When the leaving-fluid temperature starts falling below the set point, the control will remove stages of capacity to match the decrease in building load. In heating mode, 30MPQ, the capacity is driven by the condenser water leaving set point.

On units equipped with the digital compressor option, the controls integrate the modulation of the digital compressor into the capacity routine to match cooling load requirements. The digital compressor provides 22 capacity steps on unit sizes 017, 021, 031. The digital compressor provides 33 capacity steps on unit sizes 041 and 046.

The digital scroll option provides better capacity control by incrementally modulating capacity effectively, increasing the number of compression stages compared to chillers that are not equipped with this option.

The digital scroll compressor is not a variable speed device. Instead, it modulates the capacity output by allowing the scroll sets to separate during operation, alternating between full capacity and zero capacity. Utilizing a fixed timeframe ratio, the percentage of time that the scroll set is engaged is the percentage capacity of that compressor.

There are two major advantages to this type of capacity control.

- There is closer capacity control operation with all the available capacity steps compared to the on/off cycling control of conventional scrolls.
- There is much less wear on digital scrolls compared to standard scroll compressors because the digital scrolls are not subject to as many shutdown/restart cycles as conventional scrolls. Digital scrolls, rather than shutting off, tend to remain on as they vary to deliver the correct capacity.

The 30MPQ units control to leaving condenser water temperature for heating. Control sequence is the same as above except capacity is added on a fall in temperature.

Dual chiller control

The PIC6 controller allows 2 chillers (piped in parallel) to operate as a single chilled water plant with standard control functions coordinated through the primary chiller controller. This standard feature requires a communication link between the 2 chillers and an additional thermistor and well in the common supply line.

Multi-unit/Multi-chiller control

The 30MP multi-unit controller or multi-chiller controller accessory allows for control of up to (8) 30MP chillers (piped in parallel) as one central plant. The multi-unit controller or multi-chiller controller accessory requires a thermistor, in a well, in the common chilled water supply line. Both the thermistor and well are included in the multi-unit controller or multi-chiller controller accessory kit. The multi-unit controller supports heating for the 30MPQ. A thermistor is required in the common condenser water line for the heating function.

Safeties

Loss of charge

This safety will lock out the compressor if the refrigerant pressure falls below the minimum permissible level. See base unit controls and troubleshooting literature for loss of charge logic.

Controls (cont)

High-pressure cutout

This protection will lock out the compressor if the compressor discharge pressure rises above the cutout setting. See Base Unit Controls and Troubleshooting literature for pressure settings.

Compressor circuit breakers

Provided for short circuit protection.

Sensor failure protection

Failures are detected for all thermistors by the microprocessor.

Loss-of-flow protection

Loss-of-flow protection is provided by monitoring the standard proof-of-flow switch.

Compressor anti-cycling

This feature limits compressor cycling.

Freeze protection

This safety feature is provided by monitoring the leaving fluid temperature. If the leaving chilled-fluid temperature falls below the unit freeze point, then the unit will shut off immediately.

Diagnostics

Microprocessor may be put through a service test (see Controls, Start-Up, Operation, Service and Troubleshooting literature) without additional equipment or tools. Service test confirms microprocessor is functional, informs observer through display the condition of each sensor and switch in chiller, and allows observer to check for proper operation of control and compressor(s).

Sensors

The standard unit is provided with entering fluid, leaving fluid, suction pressure, and discharge pressure transducers. Additional sensors can be added for condenser entering water temperature, leaving water temperature, space temperature, outdoor air temperature, or suction gas temperature to provide additional diagnostics and control features.

Default settings

To facilitate quick start-ups, all chillers with PIC6 controls are pre-configured with a default setting that assumes stand-alone operation supplying 44°F (6.7°C) chilled water.

Configuration setting will be based on any options or accessories included with the unit at the time of manufacturing. Date and time are set to U.S.A. eastern time-zone and will need reconfiguring based on location and local time-zone. If operation based on occupancy scheduling is desired, this will also need to be set during installation.

Remote alarm

A 24-v alarm signal will be provided to a remote location in the event of a lockout condition.

Demand limit switch

Demand limiting can be accomplished through switch input or by a field-supplied 4 to 20 mA signal. For either option, Energy Management Module option (also available as an accessory) is required. The field-supplied, normally open contacts (single or pair) can be used to reduce the total chiller electrical demand during times of peak usage.

This is accomplished by reducing the number of capacity stages. In a similar manner, a field-supplied 4 to 20 mA signal can also be used to reduce the total capacity of the chillers.

Hot gas bypass

The hot gas bypass provides an additional stage of capacity control below the minimum standard step of capacity.

NOTE: Hot gas bypass is not an available option with the digital scroll compressor.

Capacity control steps

Refer to the Capacity Control Steps table below for capacity control steps for standard units.

NOTE: If the optional factory-installed hot gas bypass is used, one more stage of unloading will be added and the units will be able to operate with an additional steps of capacity.

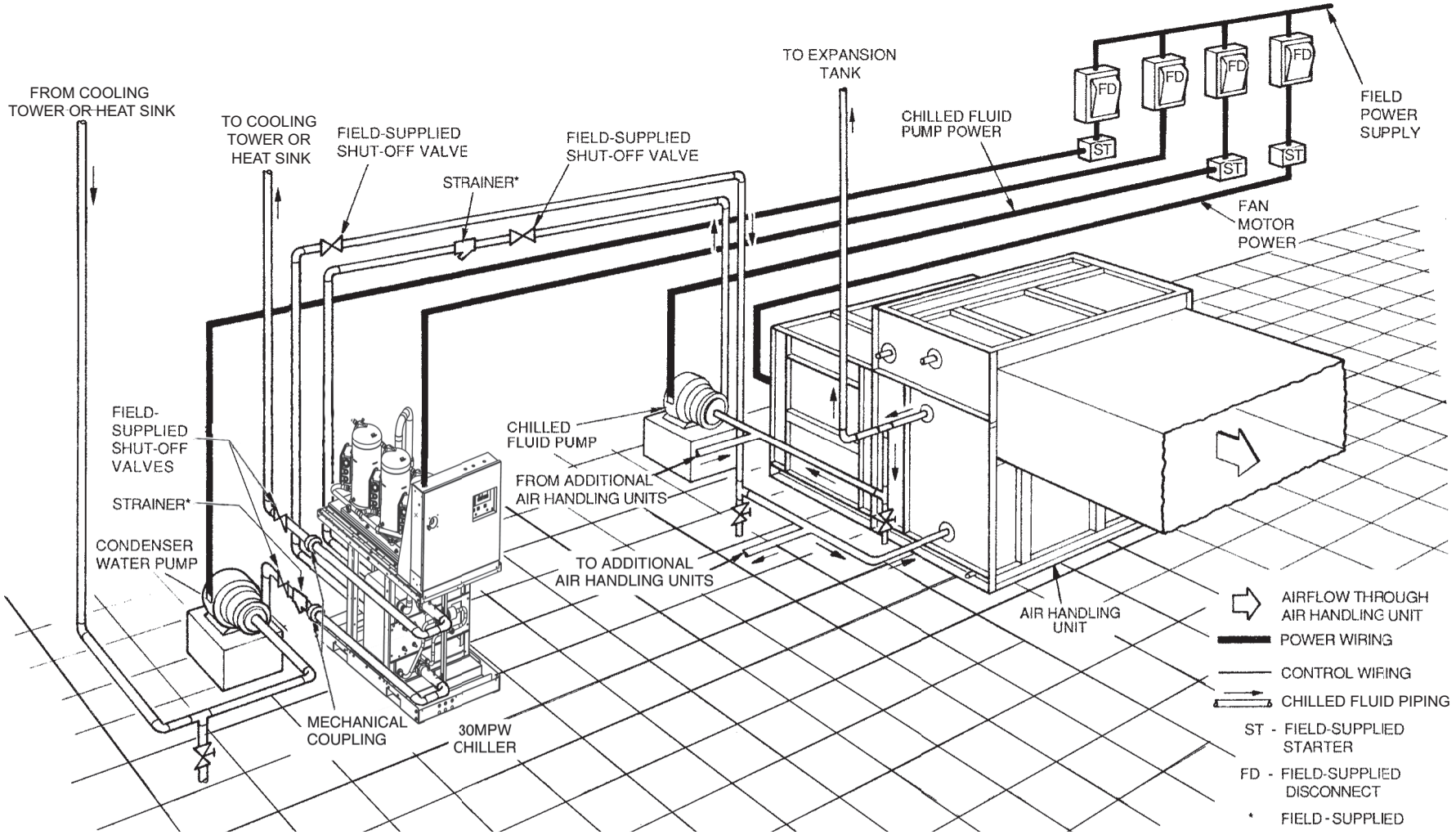
Capacity Control Steps[a]

UNIT 30MP	CONTROL STEPS	PERCENT DISPLACEMENT
017	1	20[b]
	2	40
	3	60
	4	100
021	1	25[b]
	2	50
	3	100
031	1	34[b]
	2	50
	3	100
033	1	34[b]
	2	50
	3	100
041	1	21[b]
	2	33
	3	67
	4	100
046	1	22[b]
	2	33
	3	67
	4	100
051	1	41[b]
	2	50
	3	100
056	1	41[b]
	2	50
	3	100
066	1	31[b]
	2	38
	3	100
080	1	44[b]
	2	50
	3	100

NOTE(S):

a. For digital compressor, see pages 7- 10.
b. Optional hot gas bypass.

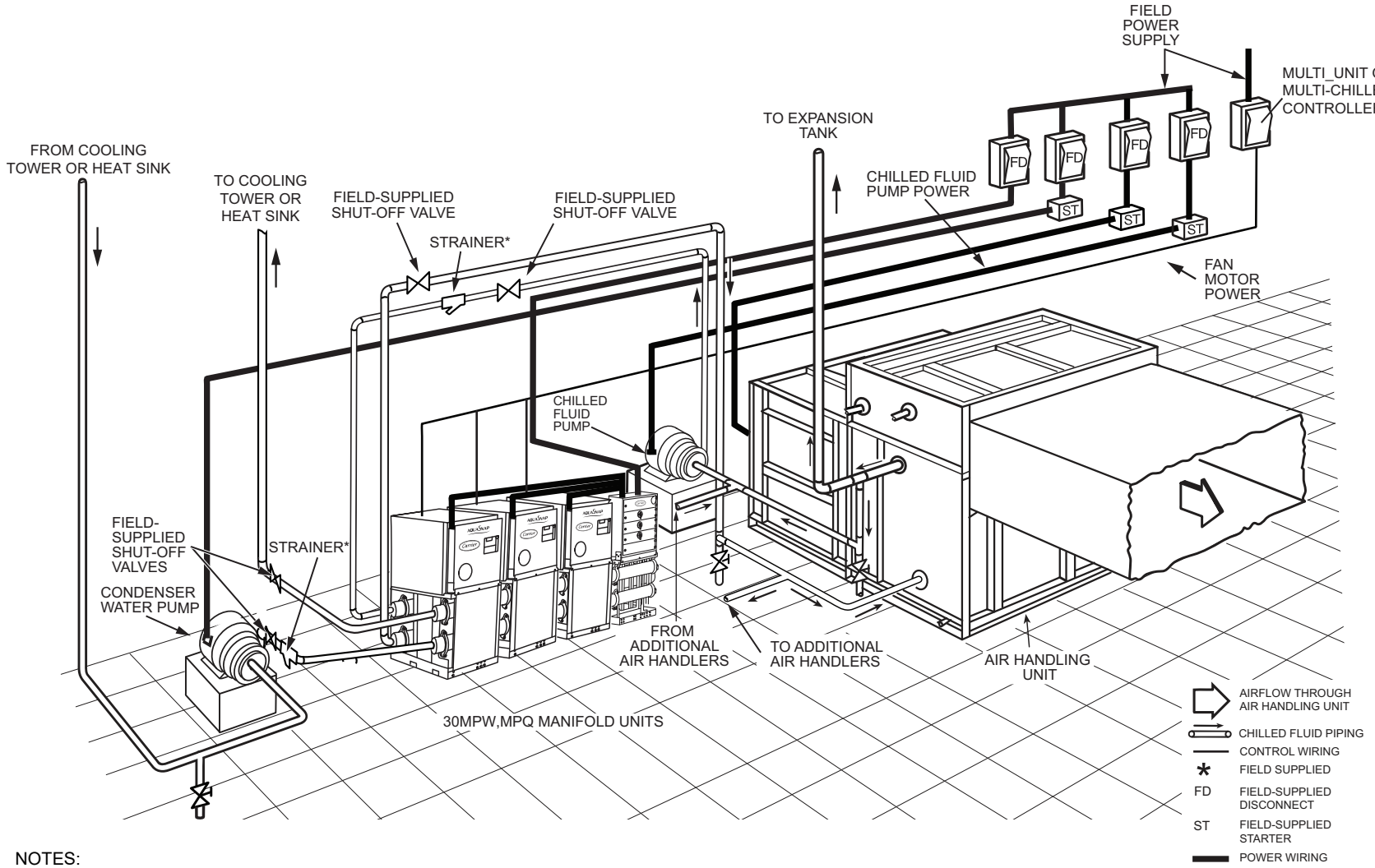
Liquid-Cooled 30MPW or 30MPQ (30MPW Shown)



NOTES:

1. Chiller must be installed *levelly* to maintain proper compressor oil return.
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual or appropriate ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) handbook for details.
5. See Application Data section on page 30 for minimum system fluid volume. This system may require the addition of a holding tank to ensure adequate volume.
6. Operating environment — Chiller should be installed in an indoor environment where the ambient temperature is between 50 and 104°F (10 and 40°C) with a relative humidity (non-condensing) of 95% or less. To ensure that electrical components operate properly, do not locate the chiller in an area exposed to dust, dirt, corrosive fumes, or excessive heat and humidity.

30MPW or 30MPQ Manifold Units Shown

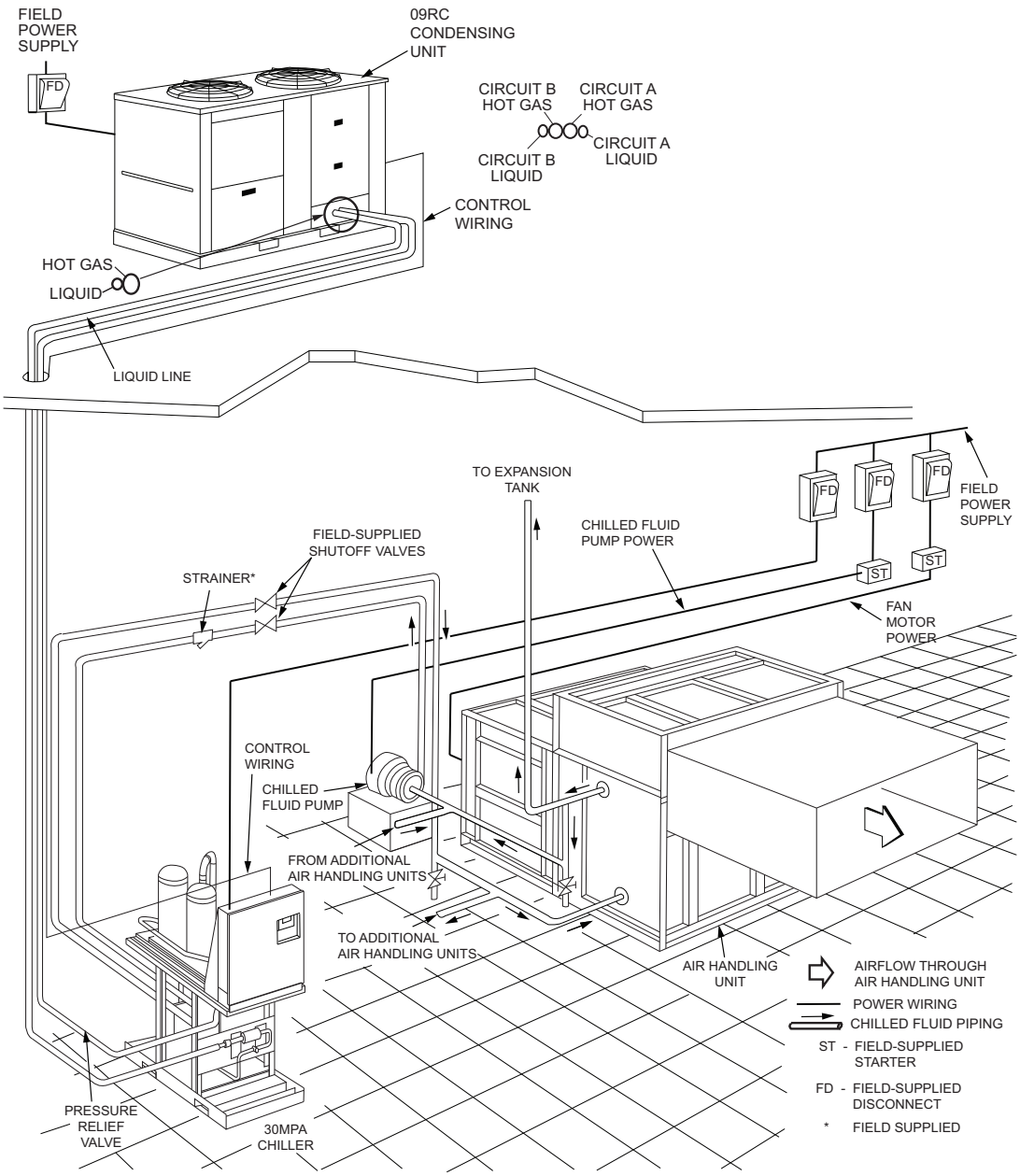


NOTES:

1. Chiller must be installed *levelly* to maintain proper compressor oil return (level adjustment kit included with manifold piping kit [option]).
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual or appropriate ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) handbook for details.
5. See Application Data section on page 31 for minimum system fluid volume. This system may require the addition of a holding tank to ensure adequate volume.
6. Operating environment — Chiller should be installed in an indoor environment where the ambient temperature is between 50 and 104°F (10 and 40°C) with a relative humidity (non-condensing) of 95% or less. To ensure that electrical components operate properly, do not locate the chiller in an area exposed to dust, dirt, corrosive fumes, or excessive heat and humidity.

Typical wiring and piping (cont)

30MPA Unit With 09RC Remote Air-Cooled Condenser Shown

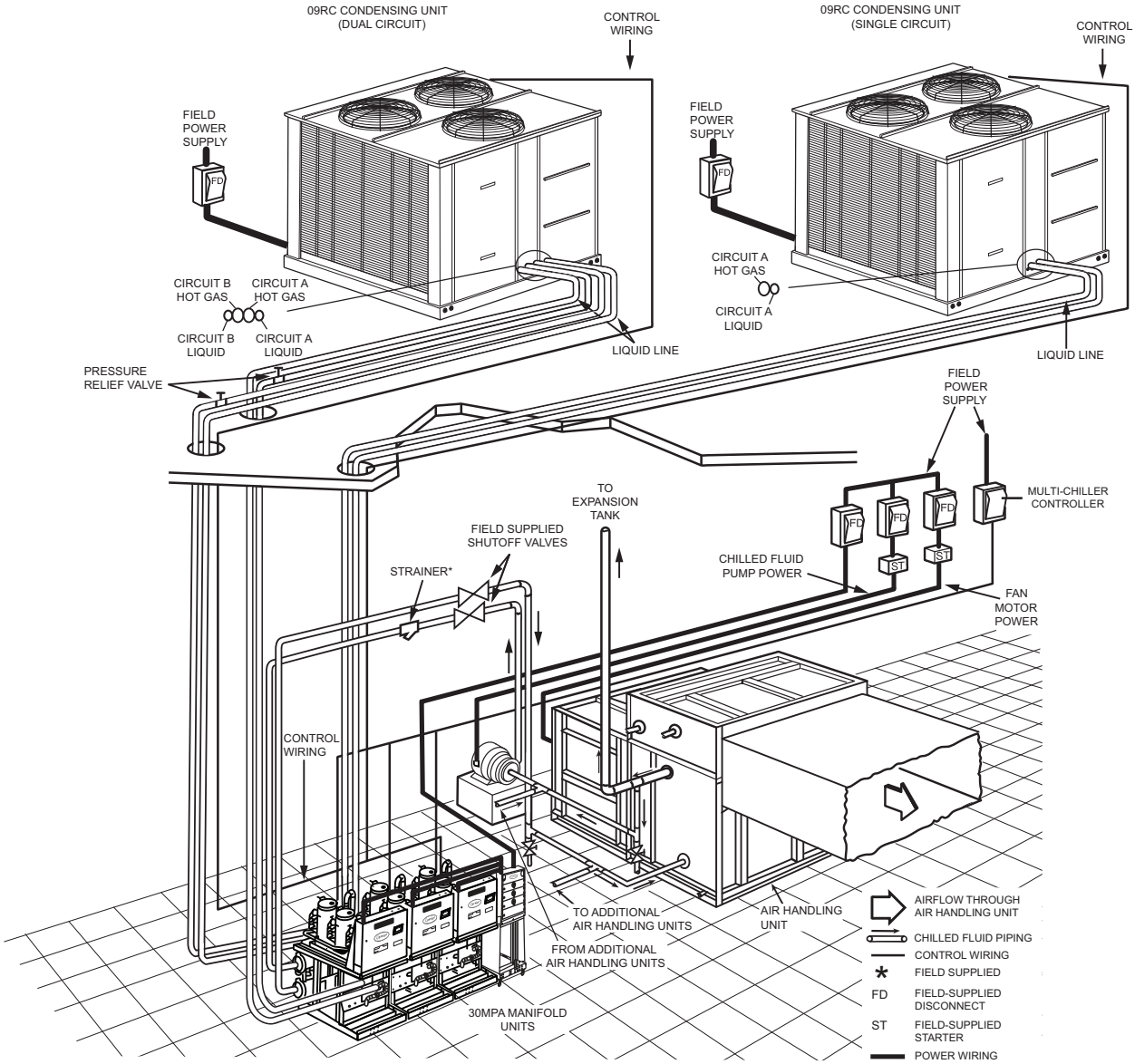


NOTES:

1. Chiller must be installed *levelly* to maintain proper compressor oil return.
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual part 3, Carrier E20-II software Refrigerant Piping program, or appropriate ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) handbook for details on proper piping sizes and design.
5. See Application Data section on page 31 for minimum system fluid volume. This system may require the addition of a holding tank to ensure adequate volume.
6. Hot gas lines should rise above refrigerant level in condenser circuit. With 30MPA/09RC matched condensers; this is accomplished internally in the 09RC unit. Double riser may be required; Check 30MPA line sizing chart.
7. Trap should be installed on hot gas lines to prevent condenser oil and refrigerant vapor migration from accumulating in the compressor during off cycle.
8. Pitch all horizontal lines downward in the direction of refrigerant flow.
9. For piping lengths greater than 50 ft (15.2 m), provide support to liquid and gas lines near the connections to the condenser coil.
10. For pressure relief requirements, see latest revision of ASHRAE Standard 15, Safety Code for Mechanical Refrigeration.
11. Operating environment — Chiller should be installed in an indoor environment where the ambient temperature is between 50 and 104°F (10 and 40°C) with a relative humidity (non-condensing) of 95% or less. To ensure that electrical components operate properly, do not locate the chiller in an area exposed to dust, dirt, corrosive fumes, or excessive heat and humidity.
12. Inverted trap required at condenser for 09RCM070-130.

Typical wiring and piping (cont)

Manifold 30MPA Units With Dual Circuit 09RC Remote Air-Cooled Condenser Shown

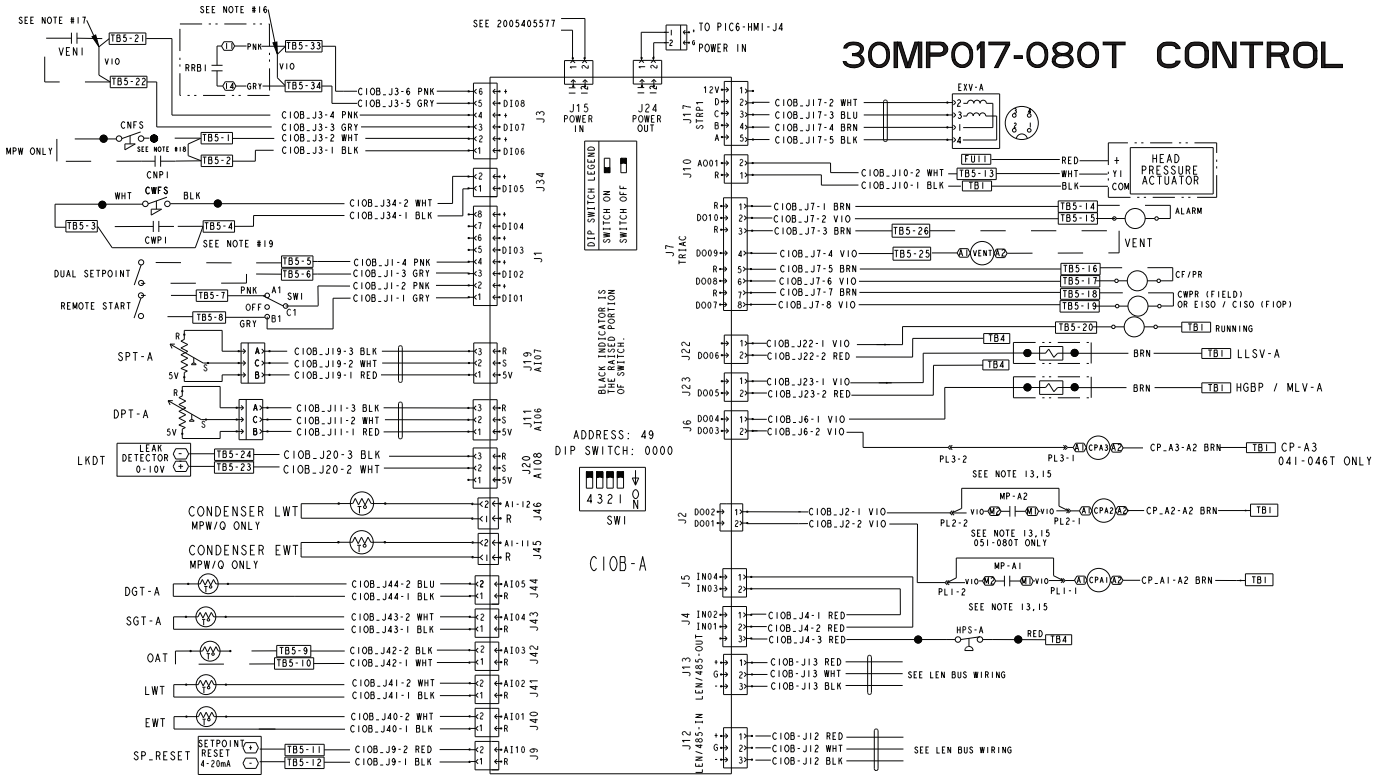


NOTES:

1. Chiller must be installed *levelly* to maintain proper compressor oil return (level adjustment kit included with manifold piping kit option).
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual part 3, Carrier E20-II software Refrigerant Piping program, or appropriate ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) handbook for details on proper piping sizes and design.
5. See Application Data section on page 30 for minimum system fluid volume. This system may require the addition of a holding tank to ensure adequate volume.
6. Hot gas lines should rise above refrigerant level in condenser circuit. With 30MPA/09RC matched condensers, this is accomplished internally in the 09RC unit. Double riser may be required; Check 30MPA line sizing chart.
7. Trap should be installed on hot gas lines to prevent condenser oil and refrigerant vapor migration from accumulating in the compressor during off cycle.
8. Pitch all horizontal lines downward in the direction of refrigerant flow.
9. For piping lengths greater than 50 ft (15.2 m), provide support to liquid and gas lines near the connections to the condenser coil.
10. For pressure relief requirements, see latest revision of ASHRAE Standard 15, Safety Code for Mechanical Refrigeration.
11. Operating environment — Chiller should be installed in an indoor environment where the ambient temperature is between 50 and 104°F (10 and 40°C) with a relative humidity (non-condensing) of 95% or less. To ensure that electrical components operate properly, do not locate the chiller in an area exposed to dust, dirt, corrosive fumes, or excessive heat and humidity.
12. Inverted trap required at condenser for 09RCM070-130.

Typical wiring schematics

30MP 017-080 Controls Schematic



NOTES:

1. FIELD-SUPPLIED CONTROL CONDUCTORS TO BE AT LEAST 18AWG (AMERICAN WIRE GAGE) OR LARGER. THE CONTROL CABINET SHOULD ONLY BE USED FOR LOW VOLTAGE FIELD WIRING (50-V MAXIMUM.)
2. EACH DIGITAL OUTPUT LOOP SHALL BE LIMITED TO A MAXIMUM OF 1A AC RMS STEADY-STAT @ 24VAC. LIGHT LOAD RELAY IS RECOMMENDED AND THE COIL VOLTAGE OF RELAY IS 24VAC. POWER SUPPLY SHALL BE PROVIDED BY CUSTOMER FUSED TRANSFORMER.
3. EACH DISCRETE INPUT LOOP IS POWERED BY INTERNAL 24VAC POWER SUPPLY. FIELD OPTIONAL CONTACTS OR SWITCH MUST HAVE 24VAC RATING, MAX CURRENT IS 60MA. NOMINAL CURRENT IS 10MA. SWITCHES WITH GOLD PLATED BIFURCATED CONTACTS ARE RECOMMENDED.
4. THE ANALOG INPUTS SUPPORT 5K/10K NTC THERMISTORS, 0/4-20MA SENSORS AND 5VDC SENSORS. IF 100K IS USED IT WILL REQUIRE A SOFTWARE CONVERSION TABLE TO CONVERT TO 10K. FOR DETAILS REFER TO THE CONTROLS, OPERATIONS, AND TROUBLE SHOOTING MANUAL AND MATCH WITH SOFTWARE.
5. EACH ANALOG OUTPUT LOOP SUPPORTS 0/4-20MA OR 0/2-10VDC VOLTAGE OUTPUT. THE ANALOG OUTPUT LOOP IS POWERED BY IOB BOARD. DO NOT SUPPLY EXTERNAL POWER. FOR DETAILS REFER TO THE CONTROLS, OPERATIONS, AND TROUBLE SHOOTING MANUAL AND MATCH WITH SOFTWARE.
6. DRY TYPE CONTACT, RATED SWITCHING LOAD 230VAC/5A OR 24VDC/5A.
7. GROUND SHIELDS AT SIGNAL GENERATING DEVICES
8. ALL FIELD INTERLOCK CONTACTS MUST HAVE A MINIMAL RATING OF 2A@24VAC SEALED.
9. IF MOTOR PROTECTOR IS USED REMOVE JUMPER FROM ASSOCIATED TERMINAL BLOCKS
10. IF CHILLED WATER PUMP INTERLOCK OR CONDENSER PUMP INTERLOCK IS USED REMOVE JUMPER ACROSS ASSOCIATED TERMINAL BLOCKS
11. FACTORY INSTALLED WIRING MUST MEET REQUIREMENTS OF UL 60335/ UL 1995, ANY FIELD INSTALLED MUST ALSO FOLLOW THE APPLIANCE CODES, ALL WIRING MUST BE RATED 75 DEGREE C
12. COMPRESSOR AND FAN MOTORS ARE THERMALLY PROTECTED - THREE PHASE MOTORS PROTECTED AGAINST PRIMARY SINGLE PHASE CONDITIONS
13. CORESENSE COMPRESSOR PROTECTION MODULE IS USED ON THE FOLLOWING UNITS: A1 COMPRESSOR- DIGITAL OPTION- 031,033,041,046T (ALL VOLTAGES) A1,A2 COMPRESSOR- 051,056,066,080T (ALL VOLTAGES). JUMPER USED ON ALL OTHER COMPRESSORS.
14. FOR FUSE REPLACEMENT TABLE REFERENCE 2003716045 SHEET 2
15. IF MP IS USED, REMOVE THE JUMPER
16. JUMPER TB5-33 AND TB5-34 IF PHASE MONITOR, RRB1, OPTION NOT USED
17. JUMPER TB5-21 AND TB5-22 IF REFRIGERANT LEAK DETECTOR SYSTEM IS NOT REQUIRED. SEE INSTALLATION MANUAL FOR REQUIREMENTS.
18. REMOVE JUMPER BETWEEN TB5-1 AND TB5-2 IF CNFS/CNPI OPTION IS USED.
19. REMOVE JUMPER BETWEEN TB5-3 AND TB5-4 IF CWPI OPTION IS USED.

LEGEND

DENOTES TEMPERATURE SENSOR	DENOTES SOLENOID
DENOTES PRESSURE SENSOR	DENOTES CONTACT
DENOTES RELAY COIL	DENOTES FLOAT SWITCH
DENOTES SHIELDED CABLE	DENOTES SWITCH
	DENOTES FIELD WIRING
	DENOTES INTERNAL WIRING HARNESS

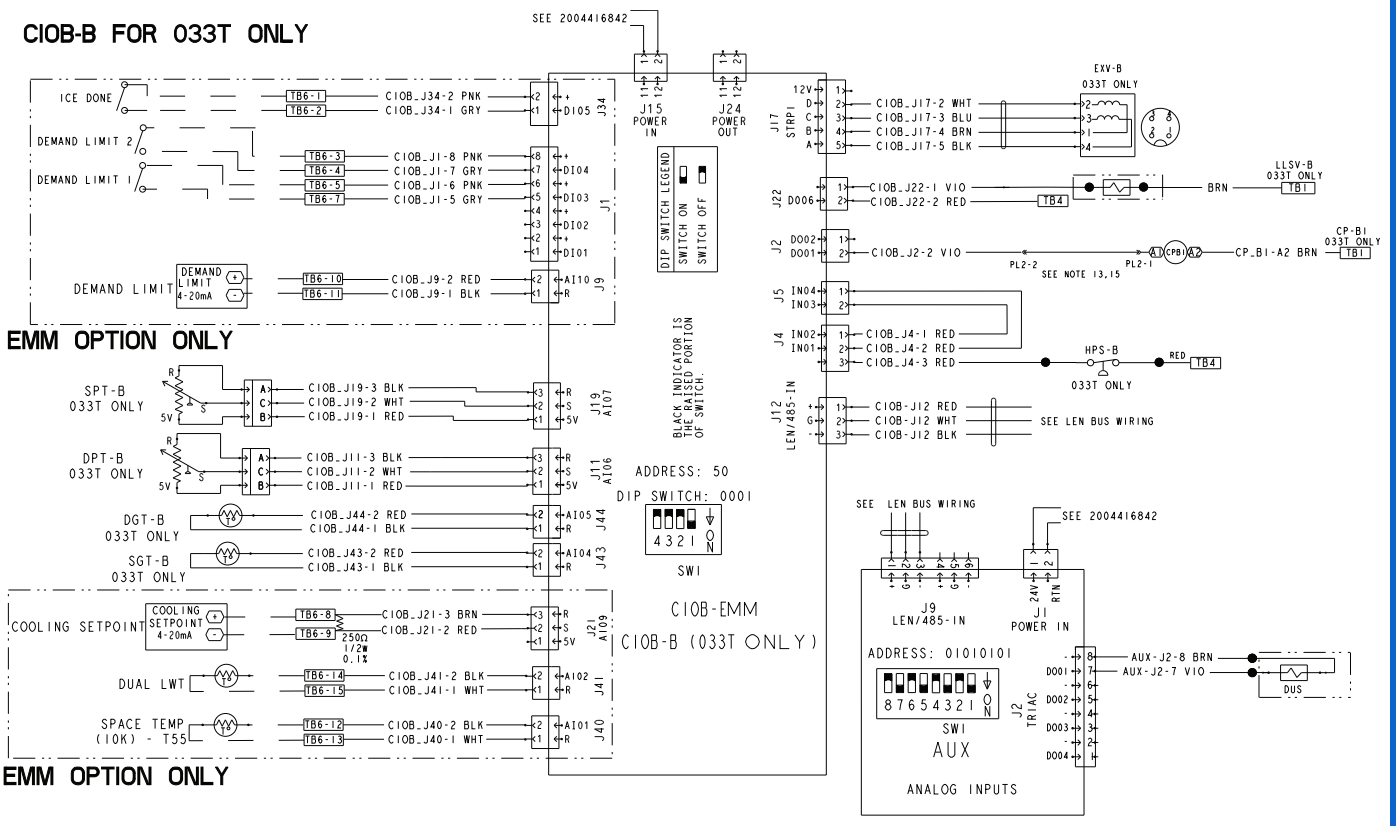
ABBREVIATION LISTING

CF	CONDENSER FAN	DGS	DISCHARGE GAS TEMPERATURE	LLSV	LIQUID LINE SOLENOID VALVE
CP	COMPRESSOR	DP	DISCHARGE PRESSURE	LWT	LEAVING WATER TEMPERATURE
CWFS	CHILLER WATER FLOW SWITCH	DUS	DIGITAL UNLOAD SOLENOID	MP	MOTOR PROTECTOR
CWPI	CHILLED WATER PUMP INTERLOCK	EXV	EXPANSION VALVE	OAT	OUTDOOR AIR TEMPERATURE
CNPI	CONDENSER PUMP INTERLOCK	EWT	ENTERING WATER TEMPERATURE	PR	CONDENSER PUMP RELAY
CNFS	CONDENSER FLOW SWITCH	EISOR	EVAPORATOR ISOLATOR RELAY	SP	SUCTION PRESSURE
CWP	CHILLED WATER PUMP	HPS	HIGH PRESSURE SWITCH	SUCT	SUCTION TEMPERATURE
CWPR	CHILLED WATER PUMP RELAY	HGBP	HOT GASBYPASS	VENI	VENTILATION INTERLOCK
CIOB	CARRIER INPUT/OUTPUT BOARD			VENT	VENTILATION OUTPUT

From 2004005001 Rev E

Typical wiring schematics (cont)

30MP 017-080 Controls Schematic (cont)



NOTES:

1. FIELD-SUPPLIED CONTROL CONDUCTORS TO BE AT LEAST 18AWG (AMERICAN WIRE GAGE) OR LARGER. THE CONTROL CABINET SHOULD ONLY BE USED FOR LOW VOLTAGE FIELD WIRING (50-V MAXIMUM.)
2. EACH DIGITAL OUTPUT LOOP SHALL BE LIMITED TO A MAXIMUM OF 1A AC RMS STEADY-STAT @ 24VAC. LIGHT LOAD RELAY IS RECOMMENDED AND THE COIL VOLTAGE OF RELAY IS 24VAC. POWER SUPPLY SHALL BE PROVIDED BY CUSTOMER FUSED TRANSFORMER.
3. EACH DISCRETE INPUT LOOP IS POWERED BY INTERNAL 24VAC POWER SUPPLY. FIELD OPTIONAL CONTACTS OR SWITCH MUST HAVE 24VAC RATING, MAX CURRENT IS 60MA. NOMINAL CURRENT IS 10MA. SWITCHES WITH GOLD PLATED BIFURCATED CONTACTS ARE RECOMMENDED.
4. THE ANALOG INPUTS SUPPORT 5K/10K NTC THERMISTORS, 0/4-20MA SENSORS AND 5VDC SENSORS. IF 100K IS USED IT WILL REQUIRE A SOFTWARE CONVERSION TABLE TO CONVERT TO 10K. FOR DETAILS REFER TO THE CONTROLS, OPERATIONS, AND TROUBLE SHOOTING MANUAL AND MATCH WITH SOFTWARE.
5. EACH ANALOG OUTPUT LOOP SUPPORTS 0/4-20MA OR 0/2-10VDC VOLTAGE OUTPUT. THE ANALOG OUTPUT LOOP IS POWERED BY 10B BOARD. DO NOT SUPPLY EXTERNAL POWER. FOR DETAILS REFER TO THE CONTROLS, OPERATIONS, AND TROUBLE SHOOTING MANUAL AND MATCH WITH SOFTWARE.
6. DRY TYPE CONTACT, RATED SWITCHING LOAD 230VAC/5A OR 24VDC/5A.
7. GROUND SHIELDS AT SIGNAL GENERATING DEVICES
8. ALL FIELD INTERLOCK CONTACTS MUST HAVE A MINIMAL RATING OF 2A@24VAC SEALED.
9. IF MOTOR PROTECTOR IS USED REMOVE JUMPER FROM ASSOCIATED TERMINAL BLOCKS
10. IF CHILLED WATER PUMP INTERLOCK OR CONDENSER PUMP INTERLOCK IS USED REMOVE JUMPER ACROSS ASSOCIATED TERMINAL BLOCKS
11. FACTORY INSTALLED WIRING MUST MEET REQUIREMENTS OF UL 60335/ UL 1995, ANY FIELD INSTALLED MUST ALSO FOLLOW THE APPLIANCE CODES, ALL WIRING MUST BE RATED 75 DEGREE C
12. COMPRESSOR AND FAN MOTORS ARE THERMALLY PROTECTED - THREE PHASE MOTORS PROTECTED AGAINST PRIMARY SINGLE PHASE CONDITIONS
13. CORESENSE COMPRESSOR PROTECTION MODULE IS USED ON THE FOLLOWING UNITS: A1 COMPRESSOR- DIGITAL OPTION- 031,033,041,046T (ALL VOLTAGES) A1,A2 COMPRESSOR- 051,056,066,080T (ALL VOLTAGES). JUMPER USED ON ALL OTHER COMPRESSORS.
14. FOR FUSE REPLACEMENT TABLE REFERENCE 2003716045 SHEET 2
15. IF MP IS USED, REMOVE THE JUMPER
16. JUMPER TB5-33 AND TB5-34 IF PHASE MONITOR, RRB1, OPTION NOT USED
17. JUMPER TB5-21 AND TB5-22 IF REFRIGERANT LEAK DETECTOR SYSTEM IS NOT REQUIRED. SEE INSTALLATION MANUAL FOR REQUIREMENTS.
18. REMOVE JUMPER BETWEEN TB5-1 AND TB5-2 IF CNFS/CNPI OPTION IS USED.
19. REMOVE JUMPER BETWEEN TB5-3 AND TB5-4 IF CWPI OPTION IS USED.

LEGEND

- DENOTES TEMPERATURE SENSOR
- DENOTES PRESSURE SENSOR
- DENOTES RELAY COIL
- DENOTES SHIELDED CABLE
- DENOTES SOLENOID
- DENOTES CONTACT
- DENOTES FLOAT SWITCH
- DENOTES SWITCH
- DENOTES FIELD WIRING
- DENOTES INTERNAL WIRING HARNESS

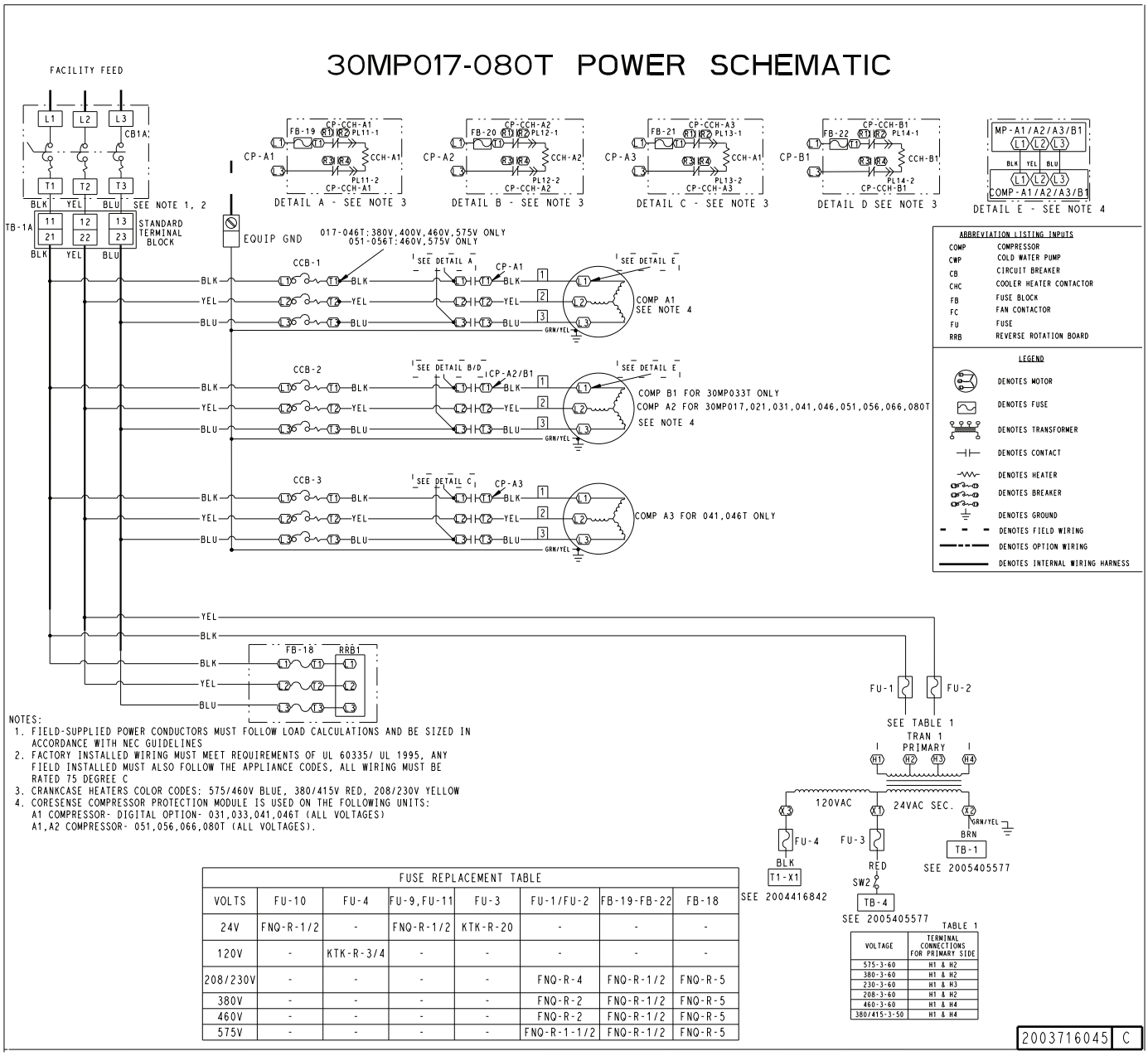
ABBREVIATION LISTING

CF	CONDENSER FAN	DGS	DISCHARGE GAS TEMPERATURE	LLSV	LIQUID LINE SOLENOID VALVE
CP	COMPRESSOR	DP	DISCHARGE PRESSURE	LWT	LEAVING WATER TEMPERATURE
CWFS	CHILLER WATER FLOW SWITCH	DUS	DIGITAL UNLOAD SOLENOID	MP	MOTOR PROTECTOR
CWPI	CHILLED WATER PUMP INTERLOCK	EXV	EXPANSION VALVE	OAT	OUTDOOR AIR TEMPERATURE
CNPI	CONDENSER PUMP INTERLOCK	EWT	ENTERING WATER TEMPERATURE	PR	CONDENSER PUMP RELAY
CNFS	CONDENSER FLOW SWITCH	EISOR	EVAPORATOR ISOLATOR RELAY	SP	SUCTION PRESSURE
CWP	CHILLED WATER PUMP	HPS	HIGH PRESSURE SWITCH	SUCT	SUCTION TEMPERATURE
CWPR	CHILLED WATER PUMP RELAY	HGBP	HOT GASBYPASS	VENI	VENTILATION INTERLOCK
C10B	CARRIER INPUT/OUTPUT BOARD			VENT	VENTILATION OUTPUT

From 2004005001 Rev E

Typical wiring schematics (cont)

30MP 017-080 Field Wiring



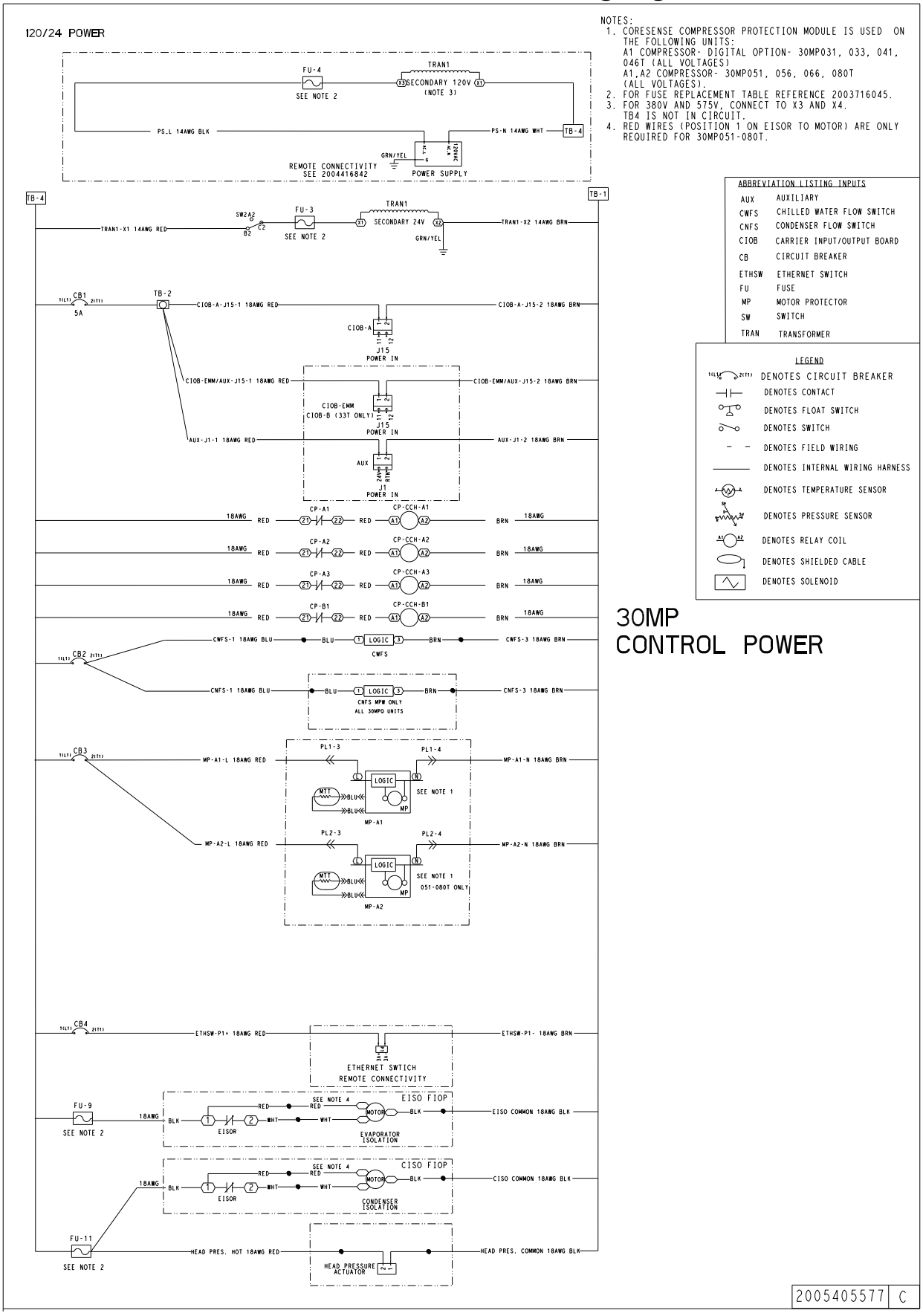
NOTES:
1. FIELD-SUPPLIED POWER CONDUCTORS MUST FOLLOW LOAD CALCULATIONS AND BE SIZED IN ACCORDANCE WITH NEC GUIDELINES
2. FACTORY INSTALLED WIRING MUST MEET REQUIREMENTS OF UL 60335/ UL 1995, ANY FIELD INSTALLED MUST ALSO FOLLOW THE APPLIANCE CODES, ALL WIRING MUST BE RATED 75 DEGREE C
3. CRANKCASE HEATERS COLOR CODES: 575/460V BLUE, 380/415V RED, 208/230V YELLOW
4. CORESENSE COMPRESSOR PROTECTION MODULE IS USED ON THE FOLLOWING UNITS:
   A1 COMPRESSOR- DIGITAL OPTION- 031,033,041,046T (ALL VOLTAGES)
   A1,A2 COMPRESSOR- 051,056,066,080T (ALL VOLTAGES).

FUSE REPLACEMENT TABLE

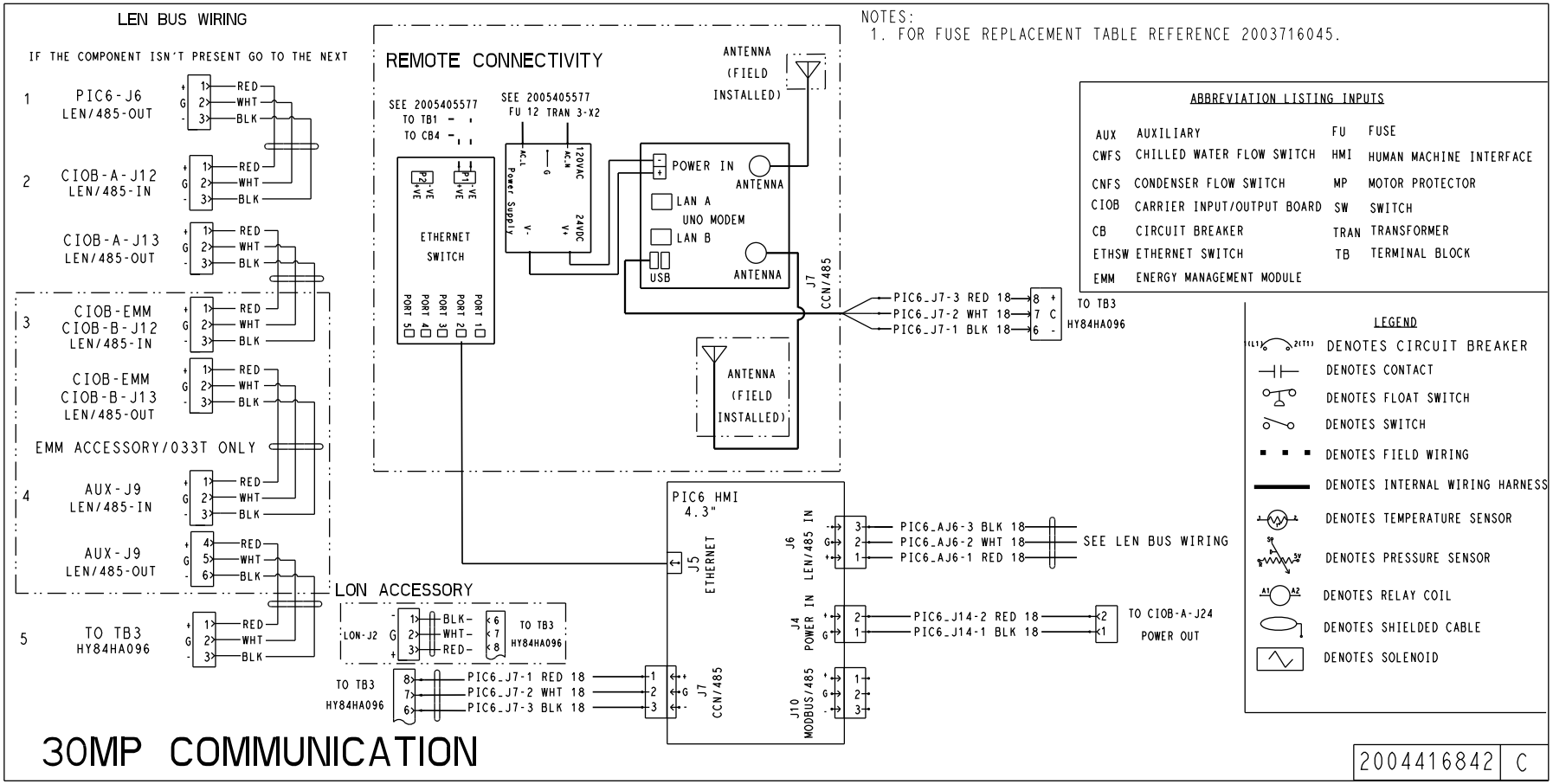
VOLTS	FU-10	FU-4	FU-9,FU-11	FU-3	FU-1/FU-2	FB-19-FB-22	FB-18
24V	FNQ-R-1/2	-	FNQ-R-1/2	KTK-R-20	-	-	-
120V	-	KTK-R-3/4	-	-	-	-	-
208/230V	-	-	-	-	FNQ-R-4	FNQ-R-1/2	FNQ-R-5
380V	-	-	-	-	FNQ-R-2	FNQ-R-1/2	FNQ-R-5
460V	-	-	-	-	FNQ-R-2	FNQ-R-1/2	FNQ-R-5
575V	-	-	-	-	FNQ-R-1-1/2	FNQ-R-1/2	FNQ-R-5

Typical wiring schematics (cont)

30MP 017-080 Electrical Wiring Diagram



30MP Communication Accessory Wiring Diagram



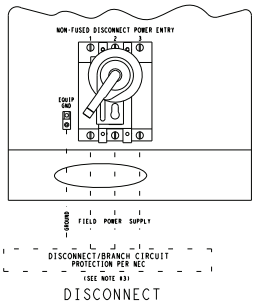
Typical wiring schematics (cont)

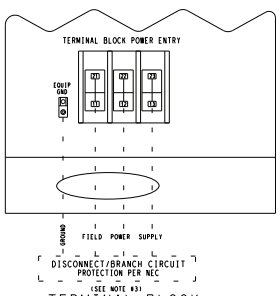
30MP 017-080 Control Schematic

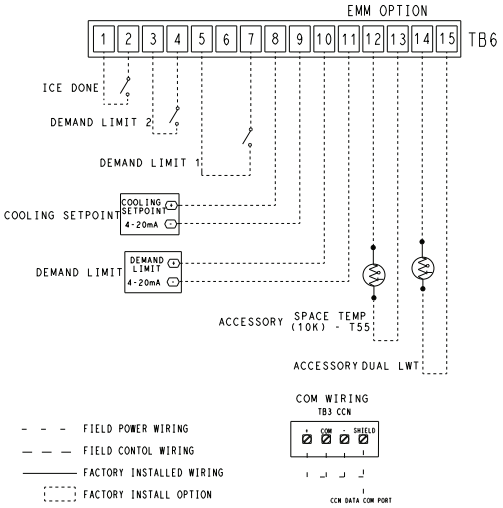
NOTES:
1. FACTORY WIRING IS IN ACCORDANCE WITH UL 60335-40-2 STANDARDS. FIELD MODIFICATIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
2. ALL UNITS OR MODULES HAVE SINGLE POINT PRIMARY POWER CONNECTION. MAIN POWER MUST BE SUPPLIED FROM A FIELD OR FACTORY SUPPLIED DISCONNECT.
3. WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.

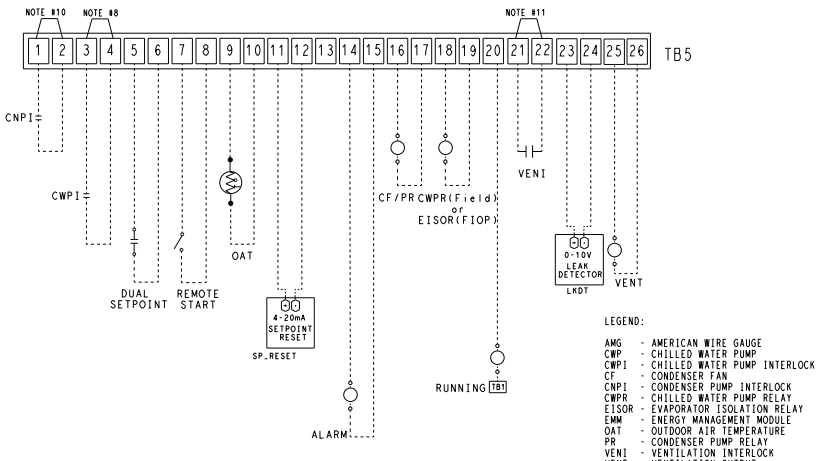
CONNECTION TYPE	MCA RANGE	WIRE SIZE RANGE	MAXIMUM NUMBER OF WIRES PER PHASE	HIGH SCCR FUSE TYPE
TERMINAL BLOCK	MCA UP TO 175	14 AWG TO 2/0 AWG	1	J, T, RK1, RK5, G, CC
	MCA 175.1 TO 420	2 AWG TO 600kcmil	1	J, T, RK1, RK5, G, CC
NON-FUSED DISCONNECT	MCA UP TO 125	14 AWG - 3/0 AWG	1	-
	MCA 125.1 TO 225	4 AWG TO 4/0	1	-
	MCA 225.1 TO 400	2/0 AWG TO 500kcmil	1	-
		2/0 AWG TO 250kcmil	2	-

4. REFER TO CERTIFIED DIMENSIONAL DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER AND CONTROL POWER ENTRANCE LOCATION.
5. TB5-18 AND TB5-19 ARE FOR CONTROL OF CHILLED WATER PUMP. TB5-16 AND TB5-17 ARE FOR CONTROL OF CONDENSER WATER PUMP. THE MAXIMUM LOAD ALLOWED FOR THE CHILLED WATER PUMP RELAY IS 5 VA SEALED, 10 VA INRUSH AT 24 V. FIELD POWER SUPPLY IS NOT REQUIRED.
6. TERMINALS TB5-20 AND TB5-14,15 ARE FOR RUNNING AND ALARM RELAYS. THE MAXIMUM LOAD ALLOWED FOR THE ALARM RELAY IS 5 VA SEALED. 10 VA INRUSH AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
7. THE CONNECTION FOR DEMAND LIMIT AND ICE DONE OPTIONS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA. INSTALLATION OF OPTIONAL ENERGY MANAGEMENT BOARD REQUIRED.
8. REMOVE FACTORY INSTALLED JUMPER BETWEEN TERMINALS TB5-3 AND 4 WHEN FIELD CWPI IS INSTALLED.
9. TB5-7 AND 8 OF TB5 ARE FOR FIELD EXTERNAL CONNECTIONS FOR REMOTE ON-OFF THE CONTACTS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP 50MA.
10. REMOVE FACTORY INSTALLED JUMPER BETWEEN TERMINALS TB5-1 AND TB5-2 WHEN FIELD CNPI IS INSTALLED.
11. REMOVE FACTORY INSTALLED JUMPER BETWEEN TERMINALS TB5-21 AND TB5-22 WHEN FIELD VENI IS INSTALLED.









TYPICAL MAIN POWER & CONTROL CONNECTIONS

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	30MP 017-080T ELECTRICAL	30MP60000600	REV
U.S. ECCN:EAR99	1 OF 1	05/07/24	-	-		A

Guide specifications

Scroll Liquid Chillers

HVAC Guide Specifications

Size Range: **17 to 80 Tons (60 to 281 kW)**

Carrier Model Numbers: **30MPA, MPQ, MPW**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Microprocessor-controlled liquid-cooled condenser (30MPW) or condenser-less (30MPA) liquid chiller or heat pump (30MPQ) utilizing scroll type compressors.

1.02 QUALITY ASSURANCE

A. Unit performance shall be rated per AHRI (Air-Conditioning, Heating and Refrigeration Institute) Standard 550/590 and 551/591, latest edition (U.S.A.) at standard rating conditions.

B. All units shall be ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) 90.1-2019 compliant.

C. Unit construction shall comply with ANSI (American National Standards Institute)/ASHRAE 15 Safety Standard (latest revision) and NEC (National Electrical Code).

D. The management system governing the manufacturing of this product is ISO 9001:2015 certified.

E. Unit shall be ETL and ETL, Canada certified.

1.03 DELIVERY, STORAGE AND HANDLING

A. Unit shall be shipped factory-assembled with all piping and wiring, precharged with a complete operating charge of R-32 (30MPW/30MPQ) or a holding charge of nitrogen (30MPA) and shall be stored and handled according to manufacturer's recommendations.

B. Unit controls shall be capable of withstanding 130°F (66°C) storage temperatures in the control compartment.

C. Chiller and starter should be stored outdoors, protected from construction dirt and moisture. An inspection should be conducted under shipping tarps, bags, or crates to be sure water has not collected during transit. Protective shipping covers should be kept in place until machine is ready for installation.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Single-piece liquid chiller consisting of compressor(s), BPHE (brazed-plate heat exchanger) evaporator, condenser (30MPW/30MPQ only), controls, safeties, and any hardware required before start-up.

B. Unit Cabinet:

1. Frame shall be of heavy-gauge galvanized steel with an electrostatically applied baked enamel finish.
2. The unit shall pass through a standard 36 in. (914 mm) door and shall not exceed 59.5 in. (1511 mm) in length.

C. Compressor:

1. Fully hermetic scroll type compressors.
2. Direct drive, 3500 rpm (58 r/s), protected by line break device, suction gas cooled motor.
3. External vibration isolation — rubber in shear.
4. Staging of compressors shall provide unloading capability. Digital compressor unloading is optional.
5. (If required) Unit shall be rated for no more than 15 hp per refrigeration circuit.

D. Evaporator:

1. Evaporator shall be rated for a maximum refrigerant pressure of 650 psig (3482 kPa).
2. Shall be single-pass, ANSI type 316 stainless steel, brazed plate construction.
3. Shall be insulated with 3/4 in. (19 mm) closed-cell, polyvinyl-chloride foam with a maximum K factor of 0.28.
4. Unit shall be provided with a factory-installed flow switch.
5. Unit shall be provided with entering and leaving chilled water temperature sensors and water pressure access port.
6. A strainer with a minimum of 40 mesh must be installed within 10 ft (3 m) of the heat exchanger fluid inlet of the chiller closest to the chiller water return header to prevent debris from clogging the heat exchanger. This strainer shall be required and shall be available as an accessory. For chillers installed in a modular configuration, the strainer shall be within 10 ft (3 m) of the fluid inlet of the chiller at the end of the "bank" of chillers.

E. Brazed-Plate Condenser:

1. Condenser shall be rated for a maximum refrigerant pressure of 650 psig (4506 kPa). Shall be tested for a maximum water-side pressure of 300 psig (2068 kPa).
2. Single-pass, liquid-cooled, ANSI type 316, stainless-steel brazed-plate construction that shall provide positive subcooling of liquid refrigerant.
3. Unit shall be equipped with Victaulic water connections.
4. A strainer with a minimum of 40 mesh must be installed within 10 ft (3 m) of heat exchanger fluid inlet of the chiller closest to the chiller water return header to prevent debris from clogging the heat exchanger. This strainer shall be required and shall be available as an accessory. For chillers installed in a modular configuration, the strainer shall be within 10 ft (3 m) of the fluid inlet of the chiller at the end of the "bank" of chillers.

F. Refrigerant Components:

1. Each chiller shall contain the following: sight glass; filter drier; liquid line solenoid valve (30MPA); liquid line isolation valve (30MPA);

expansion valve; charging port, and either one or two refrigerant circuits.

2. Per circuit, the expansion valve EXV (electronic expansion valve) shall be located within 12 in. (125 mm) of the evaporator with no bend between expansion valve and evaporator in accordance with evaporator manufacturer recommendation.

G. Controls, Safeties and Diagnostics:
   1. Controls:
      a. Unit controls shall include the following minimum components:
         1) Microprocessor.
         2) Power and control circuit terminal blocks.
         3) ON/OFF control switch.
         4) Thermistor is installed to measure evaporator entering and leaving fluid temperatures.
         5) Terminal block for temporary and/or permanent interface to the Carrier Comfort Network® or similar building system control.
      b. Microprocessor with non-volatile memory. Battery backup system shall not be accepted.
      c. Control transformer to serve all controllers, contactors, relays, and control components.
      d. Replaceable solid-state relay panels and controllers.
      e. Pressure transducers (used to calculate saturated suction temperature and saturated condensing temperature).
      f. Terminals shall be provided in the control box for wiring of accessory field-installed condenser temperature sensors.
      g. Unit controls shall be capable of performing the following functions:
         1) Capacity control based on leaving chilled fluid temperature and compensated by rate of change of return-fluid temperature.
         2) Limiting of the chilled fluid temperature pulldown rate at start-up to 1°F (0.5 °C) per minute to prevent excessive demand spikes (charges) at start-up.
         3) Seven-day time schedule.
         4) Leaving chilled fluid temperature reset from return fluid.
         5) Dual chiller control for parallel chiller applications (common leaving chilled water sensor required).
         6) Timed maintenance scheduling to signal maintenance activities.
         7) Control to condenser leaving water temperature if configured for heating service. (30MPQ Only)
   2. Diagnostics:
      a. The control panel shall include, as standard, a display:
         1) Display shall be color touch screen.
         2) Display shall allow a user to navigate through menus, select desired options, and modify data.
      b. Features of the display shall include:
         1) Multiple connection ports for USB, Ethernet, or BACnet™[1]IP, Modbus[1]-RTU (Remote Terminal Unit), LEN (local equipment network), and Carrier Comfort Network® (CCN) connections.
         NOTE: BACnet IP may require additional programming.
         2) Automatic reporting of alarms over email.
         3) Ability to graphically plot trends of system performance and conditions over time.
         4) Graphical summary display of current chiller operation and water conditions.
         5) Display shall allow access to configuration, maintenance, service, set point, time schedules, alarm history, and status data.
         6) Three levels of password protection against unauthorized access to configuration and maintenance information, and display set up parameters.
         7) Full compatibility with the Carrier Comfort Network® (CCN) system to provide email alarm notification and to provide network capability to fully monitor and control chiller.
         8) Display shall be capable of displaying the last 50 alarms, with clear full text description and time and date stamp, and will store a snapshot of operating conditions before and after the 10 most recent alarms.
         9) Display run hours and number of starts for machine and individual compressors.
         10) The control system shall allow software upgrade without the need for new hardware modules.
   3. Safeties:
      a. Unit shall be equipped with sensors and all necessary components in conjunction with the control system to provide the unit with the following protections:
         1) Loss of refrigerant charge protection.
         2) Low fluid flow detection.
         3) Low chilled fluid temperature protection.
         4) Low control voltage (to unit) protection.
         5) High-pressure switch.

1. Third-party trademarks and logos are property of their respective owners.

6) Reverse rotation. Optional phase loss monitor required for unit sizes 017-046.
7) Overcurrent protection.
8) Loss of phase. Optional phase loss monitor required for unit sizes 017-046.

b. Compressors shall be equipped with the following protections:
1) High discharge temperature protection.
2) Electrical overload through the use of IEC contactors and motor overload protection through internal compressor overload or external current overload.
3) Circuit breakers shall open all 3 phases in the event of an overload in any one phase (single-phasing condition).
4) Circuit breakers for short circuit protection.

H. Operating Characteristics:
1. Unit shall be capable of starting with up to 95°F (35°C) fluid temperature entering the evaporator.
2. Unit shall be capable of operating with variable evaporator fluid flow, up to 10% change in flow rate per minute.

I. Electrical Requirements:
1. Single-point electrical power connection with compressors factory-wired to a terminal block in the control panel. Compressor sensors and system pressure transducers shall be factory-wired to the unit controller.
2. Control interface shall be accessed through low voltage terminal strip or terminal strip.

J. Chilled Water Circuit:
1. Chilled water circuit shall be rated for 300 psig (2068 kPa).
2. Solid-state flow switch with integral relay shall be factory-installed and wired.

K. Special Features:

Certain standard features are not applicable when the features designated by * are specified. For assistance in amending the specifications, contact your Carrier representative.

1. Hot Gas Bypass:

This factory-installed option shall permit chiller to provide an additional step of capacity reduction over standard.

2. Sound Enclosure Panels:

This acoustic package shall be either factory-installed or field-installed and shall entirely enclose the compressor section to further reduce radiated sound. For the 30MPE panel, the sound enclosure panels will provide a uniform look for the 30MPE panel in a bank of 30MP chillers with sound enclosure panels.

3. Mobility Kit (Wheels):

This package shall be factory-supplied for field installation and shall include 6 swivel wheels for easy unit mobility.

4. Height Adjustment Kit:

The units shall be shipped with a high adjustment mechanism located in each corner of the unit to aid in leveling the chiller and to facilitate connections to existing piping.

5. Vibration Isolators (Resilient Pads):

Vibration isolators shall be field-installed before the unit is set into its final location and shall reduce vibration transmission through the mounting area of the chiller.

6. Vibration Isolators (Springs):

Vibration isolators shall be field-installed before the unit is set into its final location and shall reduce vibration transmission through the mounting area of the chiller.

7. Non-Fused Disconnect:

The non-fused disconnect shall be factory-installed and shall disconnect all power to the unit (including control circuit power).

8. Fused Disconnect:

The fused disconnect shall be factory-installed and shall disconnect all power to the unit (including control circuit power).

9. Brine:

a. Special modifications shall be made at the factory to permit operation with leaving chilled fluid temperatures between 15 and 32°F (–9.4 and 0.0°C).
b. Unit shall be provided with a factory-installed liquid line solenoid (per refrigerant circuit) to be used in medium temperature brine and condenser-less applications.

10. Heating:

Heating function shall provide and control condenser leaving water temperature to a maximum of 140°F. (30MPQ Only)

11. Strainer:

A Y strainer shall be available in sizes 1.5 to 6 in. with a minimum of 40 mesh for field installation.

12. Energy Management Module (EMM):

A factory or field-installed module shall provide the following energy management capabilities: 4 to 20 mA signals for leaving fluid temperature reset, cooling set point or demand limit control; 2-point demand limit control (from 15% to 100%) activated by a remote contact closure; and discrete input for “Ice Done” indication for ice storage system interface.

EMM shall be capable of:

a. Leaving temperature reset from space temperature, outdoor temperature, or 4 to 20 mA signal.

b. Demand limit or load shed via field-supplied 4 to 20 mA signal or 2-step discrete contact closure.

13. LON Translator Control:

    Unit shall be supplied with field-installed interface between the chiller and a Local Operating Network (LON, i.e., LonWorks[1] FT-10A ANSI/EIA-709.1).

14. Digital Compressor Option:

    Shall provide factory-installed digital compressor to provide additional steps of capacity (digital is not available on sizes 051-080).

15. Compressor Insulation:

    Compressor insulation is designed to insulate scroll compressors and prevent water vapor from condensing on the colder compressor surface.

16. High Interrupt Option:

    Shall provide factory-installed high interrupt option that gives the chiller a short-circuit current rating of 65 kA (25 kA at 575-v).

17. Compressor Sound Blankets:

    Units can be ordered with acoustically insulated sound blankets installed around the compressors to reduce radiated sound levels.

18. Water Manifold Piping Option:

    Shall provide piping that allows more than one 30MP chiller module to be piped together in parallel. Manual isolation/throttling combination valves. Contact your Carrier representative for automatic valve options.

19. BACnet Communication Option:

    Shall provide factory-installed communication capability with a BACnet MS/TP network. Allows integration with i-Vu® Open control system or a BACnet building automation system.

20. Multi-Chiller Controller:

    Shall provide an accessory panel that allows for the control of up to eight (8) chillers, as a single, modular unit, from a common AppController control system.

    a. Multi-Chiller Controller shall come pre-configured from the factory with a common leaving chilled water thermistor.

    b. Multi-Chiller Controller shall be compatible with multiple, non-identical chillers, water-manifold piping, and BACnet communication options.

21. Head Pressure Control Option:

    Shall provide factory-installed modulating water valve to allow minimum of 50°F (10°C) entering condenser water temperature. Shall be factory wired to the unit control panel.

22. Automatic Evaporator Isolation Option:

    Shall provide factory-installed open/closed water valve. Valve shall be open when unit control mode is enabled. Valve shall be closed when unit control mode is disable. Shall be factory wired to the unit control panel.

23. Automatic Condenser Isolation Option (30MPQ only):

    Shall provide factory-installed open/closed water valve. Valve shall be open when unit control mode is enabled. Valve shall be closed when unit control mode is disable. Shall be factory wired to the unit control panel.

24. Electrical Distribution Panel:

    An electrical cabinet for chiller breakers and disconnects for up to four (4) modules in a 30MP multi-chiller plant, shall be able to accommodate identical chillers, and designed to be piped directly into the common chiller water header.

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Replaces: 30MP-15PD